VA Northern Indiana Health Care System – Fort Wayne Campus

Interior Halls and Walls, B- 1, FW

Project Manual

PROJECT 610A4-11-149

Veterans Health Administration Office of Facilities Management Project

Construction Documents

August 5th, 2011

DEPARTMENT OF VETERANS AFFAIRS
VHA MASTER SPECIFICATIONS

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VA FORT WAYNE

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SECTION 01 00 00
GENERAL REQUIREMENTS

1.1 GENERAL INTENTION

A. Contractor shall completely prepare site for building operations, including demolition, and furnish labor and materials and perform work for Improvements to the: Floors, Walls and Ceilings of the Corridors of **B-1**as required by drawings and specifications.

B. Visits to the site by Bidders shall take place during the designated site visit.

C. All employees of general contractor and subcontractors shall comply with VA security management program and obtain permission of the VA police, be identified by project and employer, and restricted from unauthorized access.

D. Prior to commencing work, general contractor shall provide proof that a OSHA certified "competent person" (CP) (29 CFR 1926.20(b)(2) shall maintain a presence at the work site whenever the general or subcontractors are present.

E. Training:

1. All employees of general contractor or subcontractors shall have the 10-hour OSHA certified Construction Safety course and /or other relevant competency training, as determined by VA CP with input from the ICRA team. The Contractor shall also have on site full time one competent person, usually the site superintendent, that is present when ever construction

work is being performed or subcontractors are on site, this person is to have a 30-hour OSHA certificate.

2. Submit training records of all such employees for approval before the start of work.

1.2 STATEMENT OF BID ITEM(S)

Refer to Bid Schedule for all Bid Items.

1.3 SPECIFICATIONS AND DRAWINGS FOR CONTRACTOR

A. AFTER AWARD OF CONTRACT, __0___ sets of specifications and drawings shall be furnished. The Contractor shall be responsible for downloading and printing sets of drawings and copies of the specifications as they deem necessary.

1.4 HOURS OF WORK ALLOWED BY THE VA AND MAINTAINING ACCESS FOR THE VA

A. The Contractor and their Subcontractors shall be required to perform all of the work inside of the building during 'Off-hours' which shall be approved by the COTR for each area of work for each day.

1. For this project, 'Off-hours' is herein defined as other than the 'normal' workday of 6:00am-4:30pm Monday-Friday. And 'Off-hours' also includes all day Saturday and Sunday until the normal work day starts on Monday morning. (See table below) Federal Holidays will be considered and discussed as they occur on a per occurrence basis.
2. 'Normal' workday at the VA will vary for different services and different areas and different floors within this building and will also vary day to day or week to week as various programs change, start, stop or new

programs are instituted between the time of writing this and the completion of the construction project. So EXACT times are not possible to provide at this time for every area of the facility and also not knowing how a particular contractor might suggest to: Stage material, phase the work or staff the work.

3. The table here provides the 'General guideline hours' for the contractor to work in the facility. But again this is general and the specifics shall be worked out with the Contractor and the VA on a floor by floor basis and shall take into account the needs of the VA Operations first.

	Sunday	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**
VA Normal Workday – No Contractor Work		6:00 A.M.- 4:30 P.M	6:00 A.M.- 4:30 P.M	6:00 A.M.- 4:30 P.M	6:00 A.M.- 4:30 P.M	6:00 A.M.- 4:30 P.M	
Allowable Contactor Work Time	All Day	Except as Noted Above	Except as Noted Above	Except as Noted Above	Except as Noted Above	Except as Noted Above	All Day
Above Schedule is subject to VA approval as requirements of VA dictate.							

4. The Hours listed in the table above are again, 'general' in terms of the entire project. For instance, Staging of materials might be allowed in certain areas 'outside' of the 'Allowable Contractor Work Time' once the specific schedules for each floor and specific corridors on each floor are considered.

5. At the end of each of the contractor's 'shifts' the work in that entire area SHALL be completed, buttoned up, 100% useable by the VA.
   a. Ceiling tile pads SHALL be all installed with no pads being missing at the end of a shift. Cut and install all partial pads during each shift.
   b. Wall painting SHALL be completed up to a pre-determined 'cutoff' point or corner and the limit or number of door frames shall also be decided and wet paint signs installed to cover this entire area.
   c. New Flooring SHALL be installed to butt up to the existing floor that is yet to be removed without any gaps by the end of every shift. It is suggested the sacrificial floor tiles might be used daily to infill those areas that flooring was removed but does not provide a complete area for new flooring to be installed before the start of the next shift. Surface mounted transitions strips are NOT allowed as a means of satisfying this requirement. The contractor will be responsible to notify the VA as the areas of new flooring that the VA housekeeping staff may clean and areas that must be avoided.

B. The work included in this project shall be accomplished during evening or night time hours; 4:30pm -6:00am the next morning. Weekends shall also be available for the contractor to work within the constraints listed here for VA Staff and Patients that shall still occupy the building on the weekends which is the same as nighttime as described here. The reason for this is that corridors shall be kept open to VA

pedestrian and service traffic during the 'normal' day time hours. Some floors also have the need for 24/7 medical emergency access to certain areas. And EXITS may not be blocked. At the end of the 'normal' day then all of the 'out-patients' and a good deal of the staff shall have gone home which shall provide the contractor the best time to have access to the facility with the least amount of VA Staff and Patients in the building. While some floors have overnight patients and the contractor shall need to proceed with upmost caution and safety in order to not negatively impact these patients and staff, the 'nighttime' hours shall be the time that there are the least number of staff and patients using the halls and therefore shall be the time when we shall allow the contractor to remove flooring and ceiling tiles in a more robust fashion. The ability of the VA to allow a particular section of a corridor to be entirely blocked off and only to be used by the contractor shall more than likely never be possible at this facility. Even during the 'off-hours' of 4:30pm-6:00am the next morning, the VA shall have maintenance staff, Nurses and Doctors that shall be using the corridors and EXITS must be maintained. While this project is for improvements to the corridors, the offices and other rooms that are accessible only from the corridors shall be kept open for the VA staff. The VA shall have access to all areas at all times. Obviously the conflict presented by the necessity of the VA to access to all spaces at all times and for the Contractor needing to have a large enough area to work in to complete a section of the corridor at the end of each shift shall have to be painstakingly worked out by the VA and the Contractor on a floor by floor basis.

C. Noise Producing activities will be a concern since the VA has overnight patients in the building. So any activity that will create noise that will be detrimental to the VA patients will necessarily have to be specially scheduled with the VA.

1.5 CONSTRUCTION SECURITY REQUIREMENTS

A. Security Procedures:

1. General Contractor's employees shall not enter the project site without appropriate badge. They shall also be subject to inspection of their personal effects when entering or leaving the project site.
2. No photography of VA premises is allowed without written permission of the Contracting Officer.
3. VA reserves the right to close down or shut down the project site and order General Contractor's employees off the premises in the event of a national emergency. The General Contractor shall return to the site only with the written approval of the Contracting Officer.

B. Motor Vehicle Restrictions

1. Subcontractor vehicles may use the loading dock for deliveries and pick up for a limited time but shall not block or prevent the everyday deliveries for the Medical Center. Parking of contractor's vehicle at the loading dock for extended periods of time that interfere with the operation of the VAMC will not be allowed.
2. Parking for the General Contractor and its employees shall be limited to designated areas only as allowed by the COTR.

1.6 FIRE SAFETY

A. Applicable Publications: Publications listed below form part of this Article to extent referenced. Publications are referenced in text by basic designations only.

1. American Society for Testing and Materials (ASTM):

E84-2009 .....Surface Burning Characteristics of Building Materials

2. National Fire Protection Association (NFPA):

10-2010 .....Standard for Portable Fire Extinguishers

30-2008 .....Flammable and Combustible Liquids Code

51B-2009 .....Standard for Fire Prevention During Welding, Cutting and Other Hot Work

70-2011 .....National Electrical Code

241-2009 .....Standard for Safeguarding Construction, Alteration, and Demolition Operations

3. Occupational Safety and Health Administration (OSHA):

29 CFR 1926 .....Safety and Health Regulations for Construction

B. Fire Safety Plan: Establish and maintain a fire protection program in accordance with 29 CFR 1926. Prior to start of work, prepare a plan detailing project-specific fire safety measures, including periodic status reports, and submit to COTR and Facility Safety Officer for review for compliance with contract requirements in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA AND SAMPLE. Prior to any worker for the contractor or subcontractors beginning work, they shall undergo a safety briefing provided by the general contractor's competent person per OSHA requirements. This briefing

shall include information on the construction limits, VAMC safety guidelines, means of egress, break areas, work hours, locations of restrooms, use of VAMC equipment, etc. Documentation shall be provided to the COTR that individuals have undergone contractor's safety briefing.

C. Site and Building Access: Maintain free and unobstructed access to facility emergency services and for fire, police and other emergency response forces in accordance with NFPA 241.

D. Separate temporary facilities, such as trailers, storage sheds, and dumpsters, from existing buildings and new construction by distances in accordance with NFPA 241. For small facilities with less than 6 m (20 feet) exposing overall length, separate by 3m (10 feet).

E. Temporary Construction Partitions:

1. Contractor is to create and submit to the COTR a diagram indicating the area of work for each shift for each day of the contract. This diagram shall clearly show the limits of work for each shift and the limits of the separation and barricades. The Contractor shall be required to submit a minimum of 10-day's worth of diagrams at a single time, at least 5 days prior to the proposed start work.

2. The COTR shall review and approve, reject or alter the limits of the work area taking into account the Contractor's needs and the needs of the Medical Center, staff and patients. While it shall be in the best interest of the Contractor to 'barricade' large areas of each floor at one time, the Needs and Requirements of the Medical Center shall be considered

first and changes, alterations and revisions shall be made to the Contractor's proposed areas, sizes and shapes of the areas of each day's area of work.

3. Access to Exits, Fire Extinguishers, Safety Equipment, Medical Equipment and supplies, Toilet Facilities and other necessary hospital equipment and areas shall require extraordinary coordination with the COTR, Safety Officer and the Medical Center Staff. The proposed partitions and barricades shall require that these areas are accessible and alternate facilities are available as directed by the COTR, Safety Officer and the Medical Center Staff.
4. The Contractor shall be required to make and install temporary signage on each day or shift in order to notify the Medical Center staff and patients as to the where how to maneuver to the nearest exit, nearest fire extinguisher, alternate toilet rooms, etc. Signs that are installed for a day or shift are to be removed at the end of the day or shift so as to not be confusing to the staff and patients when the partitions and barricades are removed.
   a. Install and maintain temporary construction partitions to provide Patient/Staff separation and Dust/Fume separations between construction areas, and adjoining Non-Work areas.
   b. At the beginning of each shift of work, install temporary construction separation and barricades to isolate the area of work from non-work areas being used by the staff and patients. Maintain integrity of existing exit stair enclosures, exit passageways, fire-rated enclosures of hazardous

areas, horizontal exits, smoke barriers, vertical shafts and openings enclosures.

c. At the completion of each shift, remove the entirety of the temporary partitions, barricades. For areas where the floor has been removed and new flooring is being installed but where there is still an unevenness to the floor finish, provide temporary protection from tripping and protection to the edge of the new flooring being installed. These temporary protections shall be removed at the start of a continuation of the work in this area and at new temporary protection to be reinstalled at the new edges at the end of every shift.

d. Materials used by the contractor for temporary partitions, barricades, dust barriers or any temporary constructions, must not be flammable, must not off gas noxious or VOC fumes, must not be dirty, must not have sharp edges, corners seams or surfaces, must not flake off materials, must not snag clothes or otherwise pose or create a hazard of any type to the VA staff or patients.

F. Temporary Heating and Electrical: Install, use and maintain installations in accordance with 29 CFR 1926, NFPA 241 and NFPA 70.

G. Means of Egress: Do not block exiting for occupied buildings, including paths from exits to roads. Minimize disruptions and coordinate with COTR and facility Safety Officer.

H. Egress Routes for Construction Workers: Maintain free and unobstructed egress. Inspect daily. Report findings and corrective actions weekly to COTR and facility Safety Officer.

1. The temporary; storage, location, positioning or staging of Contractor's; equipment, tools or materials shall also be included on the diagrams for the daily proposed work. The arbitrary location, positioning, or staging of any of these items by the Contractor and/or their subcontractors are subject to the review and approval of the COTR and Medical Staff due to: 'blocking access, creating a safety hazard, creating a tripping hazard, being position so that other normal Medical Center activities are hindered. The location of Contractor's work area partitions and barricades is to include space for: equipment, tools supplies, trash, material etc.

I. Fire Extinguishers: Provide and maintain extinguishers in construction areas and temporary storage areas in accordance with 29 CFR 1926, NFPA 241 and NFPA 10.

J. Flammable and Combustible Liquids: Store, dispense and use liquids in accordance with 29 CFR 1926, NFPA 241 and NFPA 30.

K. Existing Fire Protection: Do not impair automatic sprinklers, smoke and heat detection, and fire alarm systems, except for portions immediately under construction, and temporarily for connections. Provide fire watch for impairments more than 4 hours in a 24-hour period. Request interruptions in accordance with Article, OPERATIONS AND STORAGE AREAS, and coordinate with COTR and facility Safety Officer. All existing or temporary fire protection systems (fire alarms, sprinklers) located in construction areas shall be tested as coordinated with the medical center. Parameters for the testing and results of any tests

performed shall be recorded by the medical center and copies provided to the Resident Engineer.

L. Smoke Detectors: Prevent accidental operation. Remove temporary covers at end of work operations each day. Coordinate with COTR and facility Safety Officer.

M. Hot Work: Is not allowed in the performance of this project.

N. Fire Hazard Prevention and Safety Inspections: Inspect entire construction areas weekly. Coordinate with, and report findings and corrective actions weekly to COTR and facility Safety Officer.

O. Smoking: Smoking is prohibited in and adjacent to construction areas inside existing buildings and additions under construction. In separate and detached buildings under construction, smoking is prohibited except in designated smoking rest areas.

P. Dispose of waste and debris in accordance with NFPA 241. Remove from buildings daily.

Q. Perform other construction, alteration and demolition operations in accordance with 29 CFR 1926.

1.7 OPERATIONS AND STORAGE AREAS

A. The Contractor shall confine all operations (including storage of materials) on Government premises to areas authorized or approved by the COTR. The Contractor shall hold and save the Government, its officers and agents, free and harmless from liability of any nature occasioned by the Contractor's performance. The contractor is solely responsible for the protection and security of their tools equipment and materials and must secure them at all times.

B. Temporary buildings (e.g., storage sheds, shops, offices) and utilities shall be erected by the

Contractor only with the approval of the Contracting Officer and shall be built with labor and materials furnished by the Contractor without expense to the Government. The temporary buildings and utilities shall remain the property of the Contractor and shall be removed by the Contractor at its expense upon completion of the work. With the written consent of the Contracting Officer, the buildings and utilities shall be abandoned and need not be removed.

C. The Contractor shall, under regulations prescribed by the Contracting Officer, use only established roadways, or use temporary roadways constructed by the Contractor when and as authorized by the Contracting Officer. When materials are transported in prosecuting the work, vehicles shall not be loaded beyond the loading capacity recommended by the manufacturer of the vehicle or prescribed by any Federal, State, or local law or regulation. When it is necessary to cross curbs or sidewalks, the Contractor shall protect them from damage. The Contractor shall repair or pay for the repair of any damaged curbs, sidewalks, or roads.

D. Working space and space available for storing materials shall be as shown on the Proposed Diagrams prepared by the Contractor and as amended, reviewed and approved by the COTR. The Contractor and their subcontractors are solely responsible for the securing and safe storage of all of their: equipment, tools, waste, and materials.

E. Workmen are subject to rules of the Medical Center applicable to their conduct. Execute work in such a manner as to interfere as little as possible with work being done by others. Keep roads clear of construction

materials, debris, standing construction equipment and vehicles at all times.

F. Execute work so as to interfere as little as possible with normal functioning of the Medical Center as a whole, including operations of utility services, fire protection systems and any existing equipment, and with work being done by others. Use of equipment and tools that transmit vibrations and noises through the building structure, are not permitted in buildings that are occupied, during construction, jointly by patients or medical personnel, and Contractor's personnel, except as permitted by COTR where required by limited working space.

1. Do not store materials and equipment in other than assigned areas.

G. Building Number-1 shall be occupied during performance of the work; but immediate areas of alterations shall be vacated.

1. Contractor shall take all measures and provide all material necessary for protecting existing equipment and property in affected areas of construction against dust and debris, so that equipment and affected areas to be used in the Medical Centers operations shall not be hindered. Contractor shall permit access to Department of Veterans Affairs personnel and patients through other construction areas which serve as routes of access to such affected areas and equipment. Coordinate alteration work in areas occupied by Department of Veterans Affairs so that Medical Center operations shall continue during the construction period.

2. Immediate areas of alterations not mentioned in preceding Subparagraph 1 shall be temporarily vacated while alterations are performed.

H. Utilities Services: Maintain existing utility services for the Medical Center at all times. Provide temporary facilities, labor, materials, equipment, connections, and utilities to assure uninterrupted services. Where necessary to cut existing water, steam, gases, sewer or air pipes, or conduits, wires, cables, etc. of utility services or of fire protection systems and communications systems (including telephone), they shall be cut and capped at suitable places where shown; or, in absence of such indication, where directed by the COTR.

1. No utility service such as water, gas, steam, sewers or electricity, or fire protection systems and communications systems shall be interrupted without prior approval of COTR. Electrical work shall be accomplished with all affected circuits or equipment de-energized. When an electrical outage cannot be accomplished, work on any energized circuits or equipment shall not commence without the Medical Center Director’s prior knowledge and written approval. 2. Contractor shall submit a request to interrupt any such services to COTR, in writing, 48 hours in advance of proposed interruption. Request shall state reason, date, exact time of, and approximate duration of such interruption.
2. Contractor shall be advised (in writing) of approval of request, or of which other date and/or time such interruption shall cause least inconvenience to operations of the Medical Center. Interruption time

approved by Medical Center shall occur at other than Contractor's normal working hours.

3. Major interruptions of any system shall be requested, in writing, at least 15 calendar days prior to the desired time and shall be performed as directed by the COTR.
4. In case of a contract construction emergency, service shall be interrupted on approval of COTR. Such approval shall be confirmed in writing as soon as practical.
5. Whenever it is required that a connection fee be paid to a public utility provider for new permanent service to the construction project, for such items as water, sewer, electricity, gas or steam, payment of such fee shall be the responsibility of the Government and not the Contractor.

I. Abandoned Lines: All service lines such as wires, cables, conduits, ducts, pipes and the like, and their hangers or supports, which are to be abandoned but are not required to be entirely removed, shall be sealed, capped or plugged. The lines shall not be capped in finished areas, but shall be removed and sealed, capped or plugged in ceilings, within furred spaces, in unfinished areas, or within walls or partitions; so that they are completely behind the finished surfaces.

J. To minimize interference of construction activities with flow of Medical Center traffic, comply with the following:

1. Keep roads, walks and entrances to grounds, to parking and to occupied areas of buildings clear of construction materials, debris and standing construction equipment and vehicles.

K. Coordinate the work for this contract with other construction operations as directed by Resident Engineer. This includes the scheduling of traffic and the use of roadways, as specified in Article, USE OF ROADWAYS.

1.8 INFECTION PREVENTION MEASURES

A. Establish and maintain a dust control program as part of the contractor's infection preventive measures in accordance with the guidelines provided by ICRA Group. Refer to the requirements of Section 01 57 19 TEMPORARY ENVIRONMENTAL CONTROLS for additional requirements. Prior to start of work, prepare a plan detailing project-specific dust protection measures, including periodic status reports, and submit to COTR and Facility ICRA team for review for compliance with contract requirements in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES.

1. All personnel involved in the construction or renovation activity shall be educated and trained in infection prevention measures established by the medical center.

B. Medical center Infection Control personnel shall monitor for airborne disease (e.g. aspergillosis) as appropriate during construction. A baseline of conditions shall be established by the medical center prior to the start of work and periodically during the construction stage to determine impact of construction activities on indoor air quality. In addition: (NOTE: ANOTHER PART OF THE SPECIFICATION OUTLINES THE CONTRACTOR'S MONITORING REQUIREMENTS AND AS SUCH THIS PARAGRAPH IN NO WAY,

DIMINISHES, LIMITS OR LESSENS THE CONTRACTOR'S RESPONSIBILITY OUTLINED IN (01.81.91 Testing for IAQ).

1. The RE and VAMC Infection Control personnel shall review pressure differential monitoring documentation to verify that pressure differentials in the construction zone and in the patient-care rooms are appropriate for their settings. The requirement for negative air pressure in the construction zone shall depend on the location and type of activity. Upon notification, the contractor shall implement corrective measures to restore proper pressure differentials as needed.
2. In case of any problem, the medical center, along with assistance from the contractor, shall conduct an environmental assessment to find and eliminate the source.

C. In general, following preventive measures shall be adopted during construction to keep down dust and prevent mold.

1. Dampen debris to keep down dust and provide temporary construction partitions in existing structures where directed by Resident Engineer. Blank off ducts and diffusers to prevent circulation of dust into occupied areas during construction.

2. Do not perform dust producing tasks within occupied areas without the approval of the COTR. For construction in any areas that shall remain jointly occupied by the medical Center and Contractor's workers, the Contractor shall:
   a. Provide dust proof temporary drywall construction barriers to completely separate construction from

the operational areas of the hospital in order to contain dirt debris and dust. Barriers shall be sealed and made presentable on hospital occupied side. Install a self-closing rated door in a metal frame, commensurate with the partition, to allow worker access. Maintain negative air at all times. A fire retardant polystyrene, 6-mil thick or greater plastic barrier meeting local fire codes shall be used where dust control is the only hazard, and an agreement is reached with the Resident Engineer and Medical Center.

b. HEPA filtration is required where the exhaust dust shall reenter the breathing zone. Contractor shall verify that construction exhaust to exterior is not reintroduced to the medical center through intake vents, or building openings. Install HEPA (High Efficiency Particulate Accumulator) filter vacuum system rated at 95% capture of 0.3 microns including pollen, mold spores and dust particles. Insure continuous negative air pressures occurring within the work area. HEPA filters shall have ASHRAE 85 or other prefilter to extend the useful life of the HEPA. Provide both primary and secondary filtrations units. Exhaust hoses shall be heavy duty, flexible steel reinforced and exhausted so that dust is not reintroduced to the medical center.

c. Adhesive Walk-off/Carpet Walk-off Mats, minimum 600mm x 900mm (24” x 36”), shall be used at all interior transitions from the construction area to occupied medical center area. These mats shall be changed as often as required to maintain clean work

areas directly outside construction area at all times.

d. Vacuum and wet mop all transition areas from construction to the occupied medical center at the end of each workday. Use 'Wet Floor' signage in all areas while wet mopping. But then Immediately dry floors that are wet mopped to remove all moisture. Drying Fans will be considered on a corridor by corridor basis, but rags and other absorbent means are to be considered as the primary method of drying. Vacuum shall utilize HEPA filtration. Maintain surrounding area frequently. Remove debris as they are created. Transport these outside the construction area in containers with tightly fitting lids.

e. The contractor shall not haul debris through patient-care areas without prior approval of the Resident Engineer and the Medical Center. When, approved, debris shall be hauled in enclosed dust proof containers or wrapped in plastic and sealed with duct tape. No sharp objects shall be allowed to cut through the plastic. Wipe down the exterior of the containers with a damp rag to remove dust. All equipment, tools, material, etc. transported through occupied areas shall be made free from dust and moisture by vacuuming and wipe down.

f. Using a HEPA vacuum, clean inside the barrier and vacuum ceiling tile prior to replacement. Any ceiling access panels opened for investigation beyond sealed areas shall be sealed immediately when unattended.

g. There shall be no standing water during construction. This includes water in equipment drip pans and open containers within the construction areas. All accidental spills shall be cleaned up and dried within 12 hours. Remove and dispose of porous materials that remain damp for more than 72 hours.

h. At completion, remove construction barriers and ceiling protection carefully, outside of normal work hours. Vacuum and clean all surfaces free of dust after the removal.

D. VA-Required Immediate Clean-up:

1. During the project, if the VA finds dust or debris outside of the Construction Barriers, then the contractor will immediately suspend all work and immediately clean up all affected areas as directed by the VA. Delays caused by the contractor's deficiencies due to required clean up are considered as contractor created delays.

2. Upon completing the clean-up of the areas as directed by the VA, the contractor will then correct all deficiencies with the construction barriers and procedures and meet with the COTR to discuss the improvements and secure the COTR's approval before continuing the work.

F. Final Cleanup:

1. Upon completion of project, or as work progresses, remove all construction debris from above ceiling, vertical shafts and utility chases that have been part of the construction.

2. Perform HEPA vacuum cleaning of all surfaces in the construction area. This includes walls, ceilings,

cabinets, furniture (built-in or free standing), partitions, flooring, etc.

3. All existing air ducts shall be cleaned prior to final inspection.

1.9 DISPOSAL AND RETENTION

A. Materials and equipment accruing from work removed and from demolition of buildings or structures, or parts thereof, shall be disposed of as follows:

1. Items that are removed by the contractor, such as but not limited to: ceiling tile, floor tile, etc are to be properly disposed of by the contractor.

1.10 PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS

A. The Contractor shall preserve and protect all structures, equipment, and vegetation (such as trees, shrubs, and grass) on or adjacent to the work site.

B. The Contractor shall protect from damage all existing improvements and utilities at or near the work site and on adjacent property of a third party, the locations of which are made known to or shall be known by the Contractor. The Contractor shall repair any damage to those facilities, including those that are the property of a third party, resulting from failure to comply with the requirements of this contract or failure to exercise reasonable care in performing the work. If the Contractor fails or refuses to repair the damage promptly, the Contracting Officer shall have the necessary work performed and charge the cost to the Contractor.

1.11 RESTORATION

A. Remove, cut, alter, replace, patch and repair existing work as necessary to install new work. Except as otherwise shown or specified, do not cut, alter or remove any structural work, and do not disturb any ducts, plumbing, steam, gas, or electric work without approval of the Resident Engineer. Existing work to be altered or extended and that is found to be defective in any way, shall be reported to the Resident Engineer before it is disturbed. Materials and workmanship used in restoring work, shall conform in type and quality to that of original existing construction, except as otherwise shown or specified.

B. Upon completion of contract, deliver work complete and undamaged. Existing work (walls, ceilings, partitions, floors, mechanical and electrical work, lawns, paving, roads, walks, etc.) disturbed or removed as a result of performing required new work, shall be patched, repaired, reinstalled, or replaced with new work, and refinished and left in as good condition as existed before commencing work.

C. At Contractor's own expense, Contractor shall immediately restore to service and repair any damage caused by Contractor's workmen to existing piping and conduits, wires, cables, etc., of utility services or of fire protection systems and communications systems (including telephone) which are indicated on drawings and which are not scheduled for discontinuance or abandonment.

D. Expense of repairs to such utilities and systems not shown on drawings or locations of which are unknown shall be covered by adjustment to contract time and

price in accordance with clause entitled "CHANGES" (FAR 52.243-4 and VAAR 852.236-88) and "DIFFERING SITE CONDITIONS" (FAR 52.236-2).

1.12 TEMPORARY USE OF EXISTING ELEVATORS

A. Use of existing Freight-elevator for handling building materials and Contractor's personnel shall be permitted subject to following provisions:

1. Contractor makes all arrangements with the COTR for use of elevators. The COTR shall ascertain that elevators are in proper condition. Contractor shall utilize the Freight Elevator in unison with the VA-Staff use and needs
2. Contractor covers and provides maximum protection of following elevator components:
   a. Entrance jambs, heads soffits and threshold plates.
   b. Entrance columns, canopy, return panels and inside surfaces of car enclosure walls.
   c. Finish flooring.

1.13 TEMPORARY TOILETS

A. The VA will allow the Contractor to utilize VAMC toilets IF they are not abused or degradated by the Contractor. Such toilet accommodations as may be assigned to be shared by the Contractor by the Medical Center. Contractor shall keep such places clean and be responsible for any damage done thereto by Contractor's workmen. Failure to maintain satisfactory condition in toilets will deprive Contractor of the privilege to use such toilets.
Toilet used by the Contractor’s workmen are NOT to be utilized for the dumping of chemical, cleaning of equipment

or tools, but are strictly for normal personal hygiene that does not include any construction chemicals or materials.

B. If the VA allows the contractor to use toilets and if these toilets are found to be abused by the contractor then the VA will at its discretion revoke permission for the contractor to use VA toilet facilities. The contractor will then be responsible to providing their own temporary toilets and the location and placement of those temporary toilets will be as directed by the VA.

1.14 AVAILABILITY AND USE OF UTILITY SERVICES

A. The Government shall make all reasonably required amounts of utilities available to the Contractor from existing outlets and supplies, as specified in the contract. The Contractor shall carefully conserve any utilities furnished without charge.

B. Electricity (for Construction and Testing): Furnish all temporary electric services.

1. Obtain electricity by connecting to the Medical Center electrical distribution system. The Contractor shall meter and pay for electricity required for electric cranes and hoisting devices, electrical welding devices and any electrical heating devices providing temporary heat. Electricity for all other uses is available at no cost to the Contractor.
2. If the Contractor’s equipment is found to be faulty or disruptive to the Medical Center’s Electrical Service, tripping breakers or inducing disruptive ‘signals’ into the electrical service then the COTR shall notify the Contractor that the use of the Medical Center’s Electrical Service shall be terminated.

C. Water (for Construction and Testing): Furnish temporary water service.

1. Obtain water by connecting to the Medical Center water distribution system. Provide reduced pressure backflow preventer at each connection. Water is available at no cost to the Contractor.
2. Maintain connections, pipe, fittings and fixtures and conserve water use so none is wasted. Failure to stop leakage or other wastes shall be cause for revocation (at COTR'S discretion) of use of water from the Medical Center's system.

1.15 TESTS

A. Pre-test ceiling mounted medical Signal equipment, smoke Detectors, Pressure meters and anything else that is to be reinstalled in the new ceiling tile, and systems to verify that they are in working order prior to disconnecting them for the ceiling tile installation. Upon the completion of the installation of the new ceiling tile, Final test, recheck, all ceiling mounted devices to verify that they are in working order. Failure of the contractor to conduct the Pre-test allows the VA to assume that all devices were working just prior to the start of construction and that all items found to be inactive upon completion of the installation of the new ceiling tile, are all problems associated with the Contractor's work and as a consequence are the Contractor's to correct, including isolation, and testing wires and devices to find the problems and correct the problems to the satisfaction of the VA, but in no instance shall quick splices be allowed as a permanent fix. New wires shall be pulled from device to device.

B. Conduct final tests required in various sections of specifications in presence of an authorized representative of the COTR, and the Contractor shall furnish all labor, materials, equipment, instruments, and forms, to conduct and record such tests. Certify all test results by signatures of those completing the testing.

1.16 RELOCATED EQUIPMENT AND DEVICES

A. Contractor shall disconnect, dismantle as necessary, remove and reinstall in new location, all existing equipment and items as indicated on the drawings.

B. Perform relocation of such equipment or items at such times and in such a manner as directed by the COTR.

C. Suitably cap existing service lines, such as steam, condensate return, water, drain, gas, air, vacuum and/or electrical, whenever such lines are disconnected from equipment to be relocated.

D. Provide all mechanical and electrical service connections, fittings, fastenings and any other materials necessary for assembly and installation of relocated equipment; and leave such equipment in proper operating condition.

E. Contractor shall employ services of an installation engineer, who is an authorized representative of the manufacturer of this equipment to supervise assembly and installation of existing equipment and devices.

1.17 TEMPORARY LIGHTS FOR CONSTRUCTION WORK

A. The General Contractor is responsible for providing either directly or by having their subcontractors providing, all of the required work lights necessary for

the General Contractor and the Subcontractor to be able to complete the work. In particular, adequate lighting will be necessary so that preparing the walls prior to painting and during the painting process and floor prep and installation.

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SECTION 01 32 16.15
PROJECT SCHEDULES

PART 1 - GENERAL

1.1 DESCRIPTION

A. The Contractor shall develop a Critical Path Method (CPM) plan and schedule demonstrating fulfillment of the contract requirements (Project Schedule), and shall keep the Project Schedule up-to-date in accordance with the requirements of this section and shall utilize the plan for scheduling, coordinating and monitoring work under this contract (including all activities of subcontractors, equipment vendors and suppliers).

1.2 COMPUTER PRODUCED SCHEDULES

A. The contractor shall provide revised up to date progress schedules at each job site meeting using Construction Scheduling software.

B. Project updates. The Schedule is to be updated daily and is to be available at all time at the Construction Site.

1.3 PROJECT SCHEDULE REQUIREMENTS

A. Include on the project schedule the sequence of work activities/events required for complete performance of all items of work. The Schedule shall include and show:

1. Activity I.D. numbers
2. Activity Description
3. Duration
4. Predecessors
5. Activity ‘connectivity’ type, (example - Fin to Start)
6. Lead
7. Lag
8. Float
9. Constraints

10. Milestones
11. The "Start Date" for the schedule is to be the Notice to Proceed Date.
12. The "Finish Date" for the work is to be the Original Contract Completion date unless it has been altered by modifications to the contract and then any new contract completion date will become the new Project Finish Date.

B. Activities are to be grouped together to reflect or describe separate phases or locations of work as mutually agreed upon for the purpose of clarity.
C. The level of detail breakdown should include that which is applicable to the project as determined by the VA-COTR for this specific project. Separation by areas: Building, Wing, Floor is normally required and should be included. Different Activities should be segregated and tracked individually and is required.
D. The Schedule should be presented at the weekly job progress meetings in a "Tracking Gantt" type of schedule.
E. To the extent that the Project Schedule or any revised Project Schedule shows anything not jointly agreed upon, it shall not be deemed to have been approved by the COTR. Failure to include any element of work required for the performance of this contract shall not excuse the Contractor from completing all work required within any applicable completion date of each phase regardless of the COTR's approval of the Project Schedule.
F. Submit to the VA revised updated schedules at each job progress meeting.

1.4 UPDATING OF THE SCHEDULE

A. Contractor is to update the schedule electronically on a daily basis. At the weekly job meetings the most recent schedule will be presented by the contractor for review.

1.5 PAYMENT TO THE CONTRACTOR

A. Approval of the Contractor's monthly Application for Payment shall be contingent, among other factors, on the submittal of satisfactory revised and updated project schedules.

1.6 PAYMENT AND PROGRESS REPORTING

A. Weekly Progress meetings will be held on dates mutually agreed to by the COTR and the Contractor. The Contractor shall accurately update the Project Schedule and all other data required and provide this information to the COTR three at the meeting. Job progress will be reviewed to verify:

1. Actual start and/or finish dates for updated/completed activities/events.
2. Remaining duration for each activity/event started, or scheduled to start, but not completed.
3. Changes in activity/event sequence and/or duration which have been made.
4. Completion percentage for all completed and partially completed activities/events.
5. Logic and duration revisions required by this section of the specifications.
6. Activity/event duration and percent complete shall be updated independently.

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SECTION 01 33 23

SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

1-1. Refer to Articles titled SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION (FAR 52.236-21) and, SPECIAL NOTES (VAAR 852.236-91), in GENERAL CONDITIONS.

1-2. For the purposes of this contract, samples (including laboratory samples to be tested), test reports, certificates, and manufacturers' literature and data shall also be subject to the previously referenced requirements. The following text refers to all items collectively as SUBMITTALS.

1-3. Submit for approval, all of the items specifically mentioned under the separate sections of the specification, with information sufficient to evidence full compliance with contract requirements. Materials, fabricated articles and the like to be installed in permanent work shall equal those of approved submittals. After an item has been approved, no change in brand or make shall be permitted unless:

A. Satisfactory written evidence is presented to, and approved by Contracting Officer, that manufacturer cannot make scheduled delivery of approved item or;

B. Item delivered has been rejected and substitution of a suitable item is an urgent necessity or;

C. Other conditions become apparent which indicates approval of such substitute item to be in best interest of the Government.

1-4. Forward submittals in sufficient time to permit proper consideration and approval action by Government. Time submission to assure adequate lead time for procurement of

contract - required items. Delays attributable to untimely and rejected submittals (including any laboratory samples to be tested) shall not serve as a basis for extending contract time for completion.

1-5. Submittals shall be reviewed for compliance with contract requirements by COTR, and action thereon shall be taken by Resident Engineer on behalf of the Contracting Officer.

1-6. Upon receipt of submittals, COTR shall assign a file number thereto. Contractor, in any subsequent correspondence, shall refer to this file and identification number to expedite replies relative to previously approved or disapproved submittals.

1-7. The Government reserves the right to require additional submittals, whether or not particularly mentioned in this contract. If additional submittals beyond those required by the contract are furnished pursuant to request therefore by Contracting Officer, adjustment in contract price and time shall be made in accordance with Articles titled CHANGES (FAR 52.243-4) and CHANGES - SUPPLEMENT (VAAR 852.236-88) of the GENERAL CONDITIONS.

1-8. Schedules called for in specifications and shown on shop drawings shall be submitted for use and information of Department of Veterans Affairs and COTR. However, the Contractor shall assume responsibility for coordinating and verifying schedules. The Contracting Officer and Architect-Engineer assumes no responsibility for checking schedules or layout drawings for exact sizes, exact numbers and detailed positioning of items.

1-9. Submittals shall be submitted by Contractor only and shipped prepaid. Contracting Officer assumes no responsibility for checking quantities or exact numbers included in such submittals.

A. Submit samples required by Section 09 06 00, SCHEDULE FOR FINISHES, in quadruplicate. Submit other samples in single units unless otherwise specified. Submit shop drawings, schedules, manufacturers' literature and data, and certificates in quadruplicate, except where a greater number is specified.

B. Submittals shall receive consideration only when covered by a transmittal letter signed by Contractor. Letter shall be sent via first class mail and shall contain the list of items, name of Medical Center, name of Contractor, contract number, applicable specification paragraph numbers, applicable drawing numbers (and other information required for exact identification of location for each item), manufacturer and brand, ASTM or Federal Specification Number (if any) and such additional information as shall be required by specifications for particular item being furnished. In addition, catalogs shall be marked to indicate specific items submitted for approval.
   1. A copy of letter shall be enclosed with items, and any items received without identification letter shall be considered "unclaimed goods" and held for a limited time only.
   2. Each sample, certificate, manufacturers' literature and data shall be labeled to indicate the name and location of the Medical Center, name of Contractor, manufacturer, brand, contract number and ASTM or Federal Specification Number as applicable and location(s) on project.
   3. Required certificates shall be signed by an authorized representative of manufacturer or supplier of material, and by Contractor.

C. In addition to complying with the applicable requirements specified in preceding Article 1.9, samples which are required to have Laboratory Tests (those preceded by symbol "LT" under the separate sections of the specification shall be tested, at the expense of Contractor, in a commercial laboratory approved by Contracting Officer.

1. Laboratory shall furnish Contracting Officer with a certificate stating that it is fully equipped and qualified to perform intended work, is fully acquainted with specification requirements and intended use of materials and is an independent establishment in no way connected with organization of Contractor or with manufacturer or supplier of materials to be tested.
2. Certificates shall also set forth a list of comparable projects upon which laboratory has performed similar functions during past three years.
3. Samples and laboratory tests shall be sent directly to approve commercial testing laboratory.
4. Contractor shall send a copy of transmittal letter to both Contracting Officer and to COTR simultaneously with submission of material to a commercial testing laboratory.
5. Laboratory test reports shall be sent directly to COTR for appropriate action.
6. Laboratory reports shall list contract specification test requirements and a comparative list of the laboratory test results. When tests show that the material meets specification requirements, the laboratory shall so certify on test report.
7. Laboratory test reports shall also include a recommendation for approval or disapproval of tested item.

D. If submittal samples have been disapproved, resubmit new samples as soon as possible after notification of disapproval. Such new samples shall be marked "Resubmitted Sample" in addition to containing other previously specified information required on label and in transmittal letter.

E. Approved samples shall be kept on file by the Resident Engineer at the site until completion of contract, at which time such samples shall be delivered to Contractor as Contractor's property. Where noted in technical sections of specifications, approved samples in good condition shall be used in their proper locations in contract work. At completion of contract, samples that are not approved shall be returned to Contractor only upon request and at Contractor's expense. Such request shall be made prior to completion of the contract. Disapproved samples that are not requested for return by Contractor shall be discarded after completion of contract.

F. Submittal drawings (shop, erection or setting drawings) and schedules, required for work of various trades, shall be checked before submission by technically qualified employees of Contractor for accuracy, completeness and compliance with contract requirements. These drawings and schedules shall be stamped and signed by Contractor certifying to such check.

1. For each drawing required, submit one legible photographic paper or vellum reproducible.
2. Reproducible shall be full size.
3. Each drawing shall have marked thereon, proper descriptive title, including Medical Center location, project number, manufacturer's number, reference to

contract drawing number, detail Section Number, and Specification Section Number.

4. A space 120 mm by 125 mm (4-3/4 by 5 inches) shall be reserved on each drawing to accommodate approval or disapproval stamp.
5. Submit drawings, ROLLED WITHIN A MAILING TUBE, fully protected for shipment.
6. One reproducible print of approved or disapproved shop drawings shall be forwarded to Contractor.
7. When work is directly related and involves more than one trade, shop drawings shall be submitted to COTR under one cover.

1-10. Samples, shop drawings, test reports, certificates and manufacturers' literature and data, shall be submitted for approval to C.O.T.R. (Contracting Officer’s Technical Representative):
James Broyles, B-52M (Engineering Services)
1700 East 38 Street
Marion, Indiana, 46953

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SECTION 01 42 19
REFERENCE STANDARDS

PART 1 - GENERAL

1.1 DESCRIPTION

This section specifies the availability and source of references and standards specified in the project manual under paragraphs APPLICABLE PUBLICATIONS and/or shown on the drawings.

1.2 AVAILABILITY OF SPECIFICATIONS LISTED IN THE GSA INDEX OF FEDERAL SPECIFICATIONS, STANDARDS AND COMMERCIAL ITEM DESCRIPTIONS FPMR PART 101-29 (FAR 52.211-1) (AUG 1998)

A. The GSA Index of Federal Specifications, Standards and Commercial Item Descriptions, FPMR Part 101-29 and copies of specifications, standards, and commercial item descriptions cited in the solicitation may be obtained for a fee by submitting a request to – GSA Federal Supply Service, Specifications Section, Suite 8100, 470 East L'Enfant Plaza, SW, Washington, DC 20407, Telephone (202) 619-8925, Facsimile (202) 619-8978.

B. If the General Services Administration, Department of Agriculture, or Department of Veterans Affairs issued this solicitation, a single copy of specifications, standards, and commercial item descriptions cited in this solicitation may be obtained free of charge by submitting a request to the addressee in paragraph (a) of this provision. Additional copies will be issued for a fee.

1.3 AVAILABILITY FOR EXAMINATION OF SPECIFICATIONS NOT LISTED IN THE GSA INDEX OF FEDERAL SPECIFICATIONS, STANDARDS AND COMMERCIAL ITEM DESCRIPTIONS (FAR 52.211-4) (JUN 1988)

The specifications and standards cited in this solicitation can be examined at the following location:

DEPARMENT OF VETERANS AFFAIRS

Office of Construction & Facilities Management

Facilities Quality Service (00CFM1A)

425 Eye Street N.W, (sixth floor)

Washington, DC 20001

Telephone Numbers: (202) 632-5249 or (202) 632-5178

Between 9:00 AM - 3:00 PM

1.4 AVAILABILITY OF SPECIFICATIONS NOT LISTED IN THE GSA INDEX OF FEDERAL SPECIFICATIONS, STANDARDS AND COMMERCIAL ITEM DESCRIPTIONS (FAR 52.211-3) (JUN 1988)

The specifications cited in this solicitation may be obtained from the associations or organizations listed below.

AA	Aluminum Association Inc. http://www.aluminum.org
AABC	Associated Air Balance Council http://www.aabchq.com
AAMA	American Architectural Manufacturer's Association http://www.aamanet.org
AAN	American Nursery and Landscape Association http://www.anla.org
AASHTO	American Association of State Highway and Transportation Officials http://www.aashto.org
AATCC	American Association of Textile Chemists and Colorists http://www.aatcc.org
ACGIH	American Conference of Governmental Industrial Hygienists http://www.acgih.org
ACI	American Concrete Institute http://www.aci-int.net
ACPA	American Concrete Pipe Association http://www.concrete-pipe.org

ACPPA American Concrete Pressure Pipe Association
http://www.acppa.org

ADC Air Diffusion Council
http://flexibleduct.org

AGA American Gas Association
http://www.aga.org

AGC Associated General Contractors of America
http://www.agc.org

AGMA American Gear Manufacturers Association, Inc.
http://www.agma.org

AHAM Association of Home Appliance Manufacturers
http://www.aham.org

AISC American Institute of Steel Construction
http://www.aisc.org

AISI American Iron and Steel Institute
http://www.steel.org

AITC American Institute of Timber Construction
http://www.aitc-glulam.org

AMCA Air Movement and Control Association, Inc.
http://www.amca.org

ANLA American Nursery & Landscape Association
http://www.anla.org

ANSI American National Standards Institute, Inc.
http://www.ansi.org

APA The Engineered Wood Association
http://www.apawood.org

ARI Air-Conditioning and Refrigeration Institute
http://www.ari.org

ASAE American Society of Agricultural Engineers
http://www.asae.org

ASCE American Society of Civil Engineers
http://www.asce.org

ASHRAE American Society of Heating, Refrigerating, and Air-Conditioning Engineers
http://www.ashrae.org

ASME American Society of Mechanical Engineers
http://www.asme.org

ASSE American Society of Sanitary Engineering
http://www.asse-plumbing.org

ASTM American Society for Testing and Materials
http://www.astm.org

AWI Architectural Woodwork Institute
http://www.awinet.org

AWS American Welding Society
http://www.aws.org

AWWA American Water Works Association
http://www.awwa.org

BHMA Builders Hardware Manufacturers Association
http://www.buildershardware.com

BIA Brick Institute of America
http://www.bia.org

CAGI Compressed Air and Gas Institute
http://www.cagi.org

CGA Compressed Gas Association, Inc.
http://www.cganet.com

CI The Chlorine Institute, Inc.
http://www.chlorineinstitute.org

CISCA Ceilings and Interior Systems Construction Association
http://www.cisca.org

CISPI Cast Iron Soil Pipe Institute
http://www.cispi.org

CLFMI Chain Link Fence Manufacturers Institute
http://www.chainlinkinfo.org

CPMB	Concrete Plant Manufacturers Bureau http://www.cpmb.org
CRA	California Redwood Association http://www.calredwood.org
CRSI	Concrete Reinforcing Steel Institute http://www.crsi.org
CTI	Cooling Technology Institute http://www.cti.org
DHI	Door and Hardware Institute http://www.dhi.org
EGSA	Electrical Generating Systems Association http://www.egsa.org
EEI	Edison Electric Institute http://www.eei.org
EPA	Environmental Protection Agency http://www.epa.gov
ETL	ETL Testing Laboratories, Inc. http://www.et1.com
FAA	Federal Aviation Administration http://www.faa.gov
FCC	Federal Communications Commission http://www.fcc.gov
FPS	The Forest Products Society http://www.forestprod.org
GANA	Glass Association of North America http://www.cssinfo.com/info/gana.html/
FM	Factory Mutual Insurance http://www.fmglobal.com
GA	Gypsum Association http://www.gypsum.org
GSA	General Services Administration http://www.gsa.gov

HI Hydraulic Institute
http://www.pumps.org

HPVA Hardwood Plywood & Veneer Association
http://www.hpva.org

ICBO International Conference of Building Officials
http://www.icbo.org

ICEA Insulated Cable Engineers Association Inc.
http://www.icea.net

\ICAC Institute of Clean Air Companies
http://www.icac.com

IEEE Institute of Electrical and Electronics Engineers
http://www.ieee.org\

IMSA International Municipal Signal Association
http://www.imsasafety.org

IPCEA Insulated Power Cable Engineers Association

NBMA Metal Buildings Manufacturers Association
http://www.mbma.com

MSS Manufacturers Standardization Society of the Valve and Fittings Industry Inc.
http://www.mss-hq.com

NAAMM National Association of Architectural Metal Manufacturers
http://www.naamm.org

NAPHCC Plumbing-Heating-Cooling Contractors Association
http://www.phccweb.org.org

NBS National Bureau of Standards
See - NIST

NBBPVI National Board of Boiler and Pressure Vessel Inspectors
http://www.nationboard.org

NEC National Electric Code
See - NFPA National Fire Protection Association

NEMA National Electrical Manufacturers Association
http://www.nema.org

NFPA National Fire Protection Association
http://www.nfpa.org

NHLA National Hardwood Lumber Association
http://www.natlhardwood.org

NIH National Institute of Health
http://www.nih.gov

NIST National Institute of Standards and Technology
http://www.nist.gov

NLMA Northeastern Lumber Manufacturers Association, Inc.
http://www.nelma.org

NPA National Particleboard Association
18928 Premiere Court
Gaithersburg, MD 20879
(301) 670-0604

NSF National Sanitation Foundation
http://www.nsf.org

NWWDA Window and Door Manufacturers Association
http://www.nwwda.org

OSHA Occupational Safety and Health Administration
Department of Labor
http://www.osha.gov

PCA Portland Cement Association
http://www.portcement.org

PCI Precast Prestressed Concrete Institute
http://www.pci.org

PPI The Plastic Pipe Institute
http://www.plasticpipe.org

PEI Porcelain Enamel Institute, Inc.
http://www.porcelainenamel.com

PTI Post-Tensioning Institute
http://www.post-tensioning.org

RFCI The Resilient Floor Covering Institute
http://www.rfci.com

RIS Redwood Inspection Service
See - CRA

RMA Rubber Manufacturers Association, Inc.
http://www.rma.org

SCMA Southern Cypress Manufacturers Association
http://www.cypressinfo.org

SDI Steel Door Institute
http://www.steeldoor.org

IGMA Insulating Glass Manufacturers Alliance
http://www.igmaonline.org

SJI Steel Joist Institute
http://www.steeljoist.org

SMACNA Sheet Metal and Air-Conditioning Contractors National Association, Inc.
http://www.smacna.org

SSPC The Society for Protective Coatings
http://www.sspc.org

STI Steel Tank Institute
http://www.steeltank.com

SWI Steel Window Institute
http://www.steelwindows.com

TCA Tile Council of America, Inc.
http://www.tileusa.com

TEMA Tubular Exchange Manufacturers Association
http://www.tema.org

TPI Truss Plate Institute, Inc.
583 D'Onofrio Drive; Suite 200

Madison, WI 53719
(608) 833-5900

UBC The Uniform Building Code
See ICBO

UL Underwriters' Laboratories Incorporated
http://www.ul.com

ULC Underwriters' Laboratories of Canada
http://www.ulc.ca

WCLIB West Coast Lumber Inspection Bureau
6980 SW Varns Road, P.O. Box 23145
Portland, OR 97223
(503) 639-0651

WRCLA Western Red Cedar Lumber Association
P.O. Box 120786
New Brighton, MN 55112
(612) 633-4334

WWPA Western Wood Products Association
http://www.wwpa.org

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SECTION 01 57 19
TEMPORARY ENVIRONMENTAL CONTROLS

PART 1 - GENERAL

1.1 DESCRIPTION

A. This section specifies the control of environmental pollution and damage that the Contractor shall consider for indoor air quality. It includes management of visual aesthetics, noise, solid waste, radiant energy, and radioactive materials, as well as other pollutants and resources encountered or generated by the Contractor. The Contractor is obligated to consider specified control measures with the costs included within the various contract items of work.

B. Environmental pollution and damage is defined as the presence of chemical, physical, or biological elements or agents which:

1. Adversely effect human health or welfare,
2. Unfavorably alter ecological balances of importance to human life,
3. Effect other species of importance to humankind, or;
4. Degrade the utility of the environment for aesthetic, cultural, and historical purposes.

C. Definitions of Pollutants:

1. VOCs (Volatile Organic Compounds): are emitted as gases from certain solids or liquids. VOCs include a variety of chemicals, some of which shall have short- and long-term adverse health effects. Concentrations of many VOCs are consistently higher indoors (up to ten times higher) than outdoors. VOCs are emitted by a wide array of products numbering in the thousands. Examples include: paints and

lacquers, paint strippers, cleaning supplies, pesticides, building materials and furnishings.

2. Chemical Waste: Petroleum products, bituminous materials, salts, acids, alkalis, herbicides, pesticides, organic chemicals, and inorganic wastes.
3. Debris: Combustible and noncombustible wastes, such as leaves, tree trimmings, ashes, and waste materials resulting from construction or maintenance and repair work.
4. Sediment: Soil and other debris that has been eroded and transported by runoff water.
5. Solid Waste: Rubbish, debris, garbage, and other discarded solid materials resulting from industrial, commercial, and agricultural operations and from community activities.
6. Surface Discharge: The term "Surface Discharge" implies that the water is discharged with possible sheeting action and subsequent soil erosion shall occur. Waters that are surface discharged shall terminate in drainage ditches, storm sewers, creeks, and/or "water of the United States" and would require a permit to discharge water from the governing agency.
7. Rubbish: Combustible and noncombustible wastes such as paper, boxes, glass and crockery, metal and lumber scrap, tin cans, and bones.
8. Sanitary Wastes:
   a. Sewage: Domestic sanitary sewage and human and animal waste.
   b. Garbage: Refuse and scraps resulting from preparation, cooking, dispensing, and consumption of food.

1.2 QUALITY CONTROL

A. Provide temporary barriers between construction area and occupied hospital areas for all work performed, and to provide physical isolation of all finished occupied areas from vapor and dust producing activities.

B. Ventilate construction areas in which air borne dust or vapors are created away from other construction activities to reduce the transfer of the contaminants from one work area to another work area.

C. Provide temporary exhaust fan(s) discharging air from the work area out of the building at locations least 25-feet from outdoor air intakes or open windows. Provide required electrical and ductwork installations.

D. Provide sufficient exhaust fan capacity to ensure:

   a. Work area pressures at least 0.05 inches water column negative relative to adjacent occupied spaces.

   b. Air speed of 100 feet per minute through any inadvertent openings in the temporary barriers.

E. Install pressure monitoring devices such as Dwyer Magnehelic gages to provide continuous measurement and readout of the negative pressure achieved in the work area across temporary barriers relative to adjacent areas.

   a. Log and post documentation on a twice-daily basis demonstrating achieved pressurization of work area equaling at least 0.05 inches water column negative.

F. Engage ACGIH-certified Industrial Hygienist to continually record historical data over the course of the work demonstrating accepted threshold levels of TVOCs (total volatile organic compounds) and particulates are not exceeded.

a. Measure and document existing levels prior to beginning the work.
b. TVOC levels shall not exceed 500 µg/m3 over values measured and documented prior to beginning of the work.
c. Particulates (PM10) levels shall not exceed 50 µg/m3 over values measured and documented prior to beginning the work.

G. Log and post documentation on a daily basis demonstrating acceptable TVOC and particulate levels in the occupied spaces adjacent to the work areas.
a. If threshold TVOC or particulate levels are exceeded, take immediate action and demonstrate corrections result in acceptable levels.
b. If acceptable levels of TVOC and particulates are not achieved, then suspend work.

1.3 REFERENCES

A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.
B. U.S. National Archives and Records Administration (NARA):
33 CFR 328.....Definitions

1.4 SUBMITTALS

A. In accordance with Section, 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES, furnish the following:
1. Environmental Protection Plan: After the contract is awarded and prior to the commencement of the work, the Contractor shall meet with the Resident Engineer to discuss the proposed Environmental Protection Plan and to develop mutual understanding relative to details of

environmental protection. Not more than 20 days after the meeting, the Contractor shall prepare and submit to the Resident Engineer and the Contracting Officer for approval, a written and/or graphic Environmental Protection Plan including, but not limited to, the following:

a. Name(s) of person(s) within the Contractor's organization who is (are) responsible for ensuring adherence to the Environmental Protection Plan.

b. Name(s) and qualifications of person(s) responsible for training the Contractor's environmental protection personnel.

e. A list of Federal, State, and local laws, regulations, and permits concerning environmental protection, pollution control, noise control and abatement that are applicable to the Contractor's proposed operations and the requirements imposed by those laws, regulations, and permits.

E. Protection of Indoor Quality Air: Keep construction activities under surveillance, management, and control to minimize pollution of indoor quality air in the medical center. Keep activities, equipment, processes, and work operated or performed, in strict accordance with VANIHCS standards.

1. Particulates: Control dust particles at all times, including weekends, holidays, and hours when work is not in progress.

4. Odors: Control VOCs (Volatile Organic Compounds) and odors at all times of construction activities and prevent obnoxious odors from occurring.

F. Reduction of Noise: Minimize noise using every action possible. Maintain noise-produced work at or below 50 dB

(decibel) levels and within the duration of work activities. Special Circumstances might very well require the contractor to postpone or reduce the level of noise do to VA-Patient Requirements on a case by case basis.

G. Restoration of Damaged Property: If any direct or indirect damage is done to public or private property resulting from any act, omission, neglect, or misconduct, the Contractor shall restore the damaged property to a condition equal to that existing before the damage at no additional cost to the Government. Repair, rebuild, or restore property as directed or make good such damage in an acceptable manner.

H. Final Clean-up: On completion of project and after removal of all debris, rubbish, and temporary construction, Contractor shall leave the construction area in a clean condition satisfactory to the Resident Engineer. Cleaning shall include off the station disposal of all items and materials not required to be salvaged, as well as all debris and rubbish resulting from demolition and new work operations.

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SECTION 01 58 16
TEMPORARY INTERIOR SIGNAGE

PART 1 GENERAL

DESCRIPTION

This section specifies temporary interior signs.

PART 2 PRODUCTS

2.1 TEMPORARY SIGNS

A. Fabricate from 50 Kg (110 pound) mat finish white paper.

B. Cut to 100 mm (4-inch) wide by 300 mm (12 inch) long size tag.

C. Punch 3 mm (1/8-inch) diameter hole centered on 100 mm (4-inch) dimension of tag. Edge of Hole spaced approximately 13 mm (1/2-inch) from one end on tag.

D. Reinforce hole on both sides with gummed cloth washer or other suitable material capable of preventing tie pulling through paper edge.

E. Ties: Steel wire 0.3 mm (0.0120-inch) thick, attach to tag with twist tie, leaving 150 mm (6-inch) long free ends.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install temporary signs attached to room door frame or room door knob, lever, or pull for doors on corridor openings.

B. Mark on signs with felt tip marker having approximately 3 mm (1/8-inch) wide stroke for clearly legible numbers or letters.

C. Identify room with numbers as designated on floor plans.

3.2 LOCATION

A. Install on doors that have room, corridor, and space numbers shown.

B. Doors that do not require signs are as follows:

1. Corridor barrier doors (cross-corridor) in corridor with same number.
2. Folding doors or partitions.
3. Toilet or bathroom doors within and between rooms.
4. Communicating doors in partitions between rooms with corridor entrance doors.
5. Closet doors within rooms.

C. Replace missing, damaged, or illegible signs.

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SECTION 01 74 19
CONSTRUCTION WASTE MANAGEMENT

PART 1 – GENERAL

1.1 DESCRIPTION

A. This section specifies the requirements for the management of non-hazardous building construction and demolition waste.

B. Waste disposal in landfills shall be minimized to the greatest extent possible. Of the inevitable waste that is generated, as much of the waste material as economically feasible shall be salvaged, recycled or reused.

C. Contractor shall use all reasonable means to divert construction and demolition waste from landfills and incinerators, and facilitate their salvage and recycle not limited to the following:

1. Waste Management Plan development and implementation.
2. Techniques to minimize waste generation.
3. Sorting and separating of waste materials.
4. Salvage of existing materials and items for reuse or resale.
5. Recycling of materials that cannot be reused or sold.

D. At a minimum the following waste categories shall be diverted from landfills:

1. Soil.
2. Inerts (e.g., concrete, masonry and asphalt).
3. Clean dimensional wood and palette wood.
4. Green waste (biodegradable landscaping materials).
5. Engineered wood products (plywood, particle board and I-joists, etc).
6. Metal products (e.g., steel, wire, beverage containers, copper, etc).

7. Cardboard, paper and packaging.
8. Bitumen roofing materials.
9. Plastics (e.g., ABS, PVC).
10. Carpet and/or pad.
11. Gypsum board.
12. Insulation.
13. Paint.
14. Fluorescent lamps.

1.2 RELATED WORK

A. Section 02 41 00, DEMOLITION.

B. Section 01 00 00, GENERAL REQUIREMENTS.

1.3 QUALITY ASSURANCE

A. Contractor shall practice efficient waste management when sizing, cutting and installing building products. Processes shall be employed to ensure the generation of as little waste as possible. Construction /Demolition waste includes products of the following:
   1. Excess or unusable construction materials.
   2. Packaging used for construction products.
   3. Poor planning and/or layout.
   4. Construction error.
   5. Over ordering.
   6. Weather damage.
   7. Contamination.
   8. Mishandling.
   9. Breakage.

B. Establish and maintain the management of non-hazardous building construction and demolition waste set forth herein. Conduct a site assessment to estimate the types of materials that shall be generated by demolition and construction.

C. Contractor shall develop and implement procedures to reuse and recycle new materials to a minimum of 50 percent.

D. Contractor shall be responsible for implementation of any special programs involving rebates or similar incentives related to recycling. Any revenues or savings obtained from salvage or recycling shall accrue to the contractor.

E. Contractor shall provide all demolition, removal and legal disposal of materials. Contractor shall ensure that facilities used for recycling, reuse and disposal shall be permitted for the intended use to the extent required by local, state, federal regulations. The Whole Building Design Guide website http://www.wbdg.org provides a Construction Waste Management Database that contains information on companies that haul, collect, and process recyclable debris from construction projects.

F. Contractor shall assign a specific area to facilitate separation of materials for reuse, salvage, recycling, and return. Such areas are to be kept neat and clean and clearly marked in order to avoid contamination or mixing of materials.

G. Contractor shall provide on-site instructions and supervision of separation, handling, salvaging, recycling, reuse and return methods to be used by all parties during waste generating stages.

H. Record on daily reports any problems in complying with laws, regulations and ordinances with corrective action taken.

1.4 TERMINOLOGY

A. Class III Landfill: A landfill that accepts non-hazardous resources such as household, commercial and industrial waste resulting from construction, remodeling, repair and demolition operations.

B. Clean: Untreated and unpainted; uncontaminated with adhesives, oils, solvents, mastics and like products.
C. Construction and Demolition Waste: Includes all non-hazardous resources resulting from construction, remodeling, alterations, repair and demolition operations.
D. Dismantle: The process of parting out a building in such a way as to preserve the usefulness of its materials and components.
E. Disposal: Acceptance of solid wastes at a legally operating facility for the purpose of land filling (includes Class III landfills and inert fills).
F. Inert Backfill Site: A location, other than inert fill or other disposal facility, to which inert materials are taken for the purpose of filling an excavation, shoring or other soil engineering operation.
G. Inert Fill: A facility that can legally accept inert waste, such as asphalt and concrete exclusively for the purpose of disposal.
H. Inert Solids/Inert Waste: Non-liquid solid resources including, but not limited to, soil and concrete that does not contain hazardous waste or soluble pollutants at concentrations in excess of water-quality objectives established by a regional water board, and does not contain significant quantities of decomposable solid resources.
I. Mixed Debris: Loads that include commingled recyclable and non-recyclable materials generated at the construction site.
J. Mixed Debris Recycling Facility: A solid resource processing facility that accepts loads of mixed construction and demolition debris for the purpose of recovering re-usable and recyclable materials and disposing non-recyclable materials.

K. Permitted Waste Hauler: A company that holds a valid permit to collect and transport solid wastes from individuals or businesses for the purpose of recycling or disposal.

L. Recycling: The process of sorting, cleansing, treating, and reconstituting materials for the purpose of using the altered form in the manufacture of a new product. Recycling does not include burning, incinerating or thermally destroying solid waste.

   1. On-site Recycling – Materials that are sorted and processed on site for use in an altered state in the work, i.e. concrete crushed for use as a sub-base in paving.
   2. Off-site Recycling – Materials hauled to a location and used in an altered form in the manufacture of new products.

M. Recycling Facility: An operation that can legally accept materials for the purpose of processing the materials into an altered form for the manufacture of new products. Depending on the types of materials accepted and operating procedures, a recycling facility shall or shall not be required to have a solid waste facilities permit or be regulated by the local enforcement agency.

N. Reuse: Materials that are recovered for use in the same form, on-site or off-site.

O. Return: To give back reusable items or unused products to vendors for credit.

P. Salvage: To remove waste materials from the site for resale or re-use by a third party.

Q. Source-Separated Materials: Materials that are sorted by type at the site for the purpose of reuse and recycling.

R. Solid Waste: Materials that have been designated as non-recyclable and are discarded for the purposes of disposal.

S. Transfer Station: A facility that can legally accept solid waste for the purpose of temporarily storing the materials for re-loading onto other trucks and transporting them to a landfill for disposal, or recovering some materials for re-use or recycling.

1.5 SUBMITTALS

A. In accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, and SAMPLES, furnish the following:

B. Prepare and submit to the Resident Engineer a written demolition debris management plan. The plan shall include, but not be limited to, the following information:

1. Procedures to be used for debris management.
2. Techniques to be used to minimize waste generation.
3. Analysis of the estimated job site waste to be generated:
   a. List of each material and quantity to be salvaged, reused, recycled.
   b. List of each material and quantity proposed to be taken to a landfill.
4. Detailed description of the Means/Methods to be used for material handling.
   a. On site: Material separation, storage, protection where applicable.
   b. Off site: Transportation means and destination. Include list of materials.
      1) Description of materials to be site-separated and self-hauled to designated facilities.
      2) Description of mixed materials to be collected by designated waste haulers and removed from the site.
   c. The names and locations of mixed debris reuse and recycling facilities or sites.
   d. The names and locations of trash disposal landfill facilities or sites.

e. Documentation that the facilities or sites are approved to receive the materials.

C. Designated Manager responsible for instructing personnel, supervising, documenting and administer over meetings relevant to the Waste Management Plan.

D. Monthly summary of construction and demolition debris diversion and disposal, quantifying all materials generated at the work site and disposed of or diverted from disposal through recycling.

1.6 APPLICABLE PUBLICATIONS

A Publications listed below form a part of this specification to the extent referenced. Publications are referenced by the basic designation only. In the event that criteria requirements conflict, the most stringent requirements shall be met.

B. U.S. Green Building Council (USGBC):
LEED Green Building Rating System for New Construction

1.7 RECORDS

Maintain records to document the quantity of waste generated; the quantity of waste diverted through sale, reuse, or recycling; and the quantity of waste disposed by landfill or incineration. Records shall be kept in accordance with the LEED Reference Guide and LEED Template.

PART 2 - PRODUCTS

2.1 MATERIALS

A. List of each material and quantity to be salvaged, recycled, reused.

B. List of each material and quantity proposed to be taken to a landfill.

C. Material tracking data: Receiving parties, dates removed, transportation costs, weight tickets, tipping fees, manifests, invoices, net total costs or savings.

PART 3 - EXECUTION

3.1 COLLECTION

A. Provide all necessary containers, bins and storage areas to facilitate effective waste management.

B. Clearly identify containers, bins and storage areas so that recyclable materials are separated from trash and can be transported to respective recycling facility for processing.

C. Hazardous wastes shall be separated, stored, disposed of according to local, state, federal regulations.

3.2 DISPOSAL

A. Contractor shall be responsible for transporting and disposing of materials that cannot be delivered to a source-separated or mixed materials recycling facility to a transfer station or disposal facility that can accept the materials in accordance with state and federal regulations.

B. Construction or demolition materials with no practical reuse or that cannot be salvaged or recycled shall be disposed of at a landfill or incinerator.

3.3 REPORT

A. With each application for progress payment, submit a summary of construction and demolition debris diversion and disposal including beginning and ending dates of period covered.

B. Quantify all materials diverted from landfill disposal through salvage or recycling during the period with the receiving parties, dates removed, transportation costs, weight tickets, manifests, invoices. Include the net total costs or savings for each salvaged or recycled material.

C. Quantify all materials disposed of during the period with the receiving arties, dates removed, transportation costs,

weight tickets, tipping fees, manifests, invoices. Include the net total costs for each disposal.

Construction Debris -Monthly Report

Required each month per specification section; 01 74 19 "Construction Waste Management"
Submit Completed Report each month with Monthly Pay Application.

Contract No.: VA251-C-
Project No.:
Title of Project:
Beginning Date of this Report:
Ending Date of this Report:
Date Project Started:

From:
(Contractors name - must be same as on the contract)
Address:
City:
State/Zip:
Designated Manager:
Name:
Telephone:
E-Mail:

A. At a minimum the following waste categories shall be diverted from landfills.

B. Attach additional sheets as required.

	Recycled Debris		
	Weight in Pounds for Recycled Debris	Cost or Credit for Recycled Debris	Disposal Costs
1 Soil.		$ -	$ -
2 Inerts (e.g., concrete, masonry and asphalt).		$ -	$ -
3 Clean dimensional wood and palette wood.		$ -	$ -
4 Green waste (biodegradable landscaping materials).		$ -	$ -
5 Engineered wood products (plywood, particle board and I-joists, etc).		$ -	$ -
6 Metal products (e.g., steel, wire, beverage containers, copper, etc).		$ -	$ -
7 Cardboard, paper and packaging.		$ -	$ -
8 Bitumen roofing materials.		$ -	$ -
9 Plastics (e.g., ABS, PVC).		$ -	$ -
10 Carpet and/or pad.		$ -	$ -
11 Gypsum board.		$ -	$ -
12 Insulation.		$ -	$ -
13 Paint.		$ -	$ -
14 Fluorescent lamps.		$ -	$ -
15 Transportation Costs			$ -
16 Weight Ticket Fees			$ -
17		$ -	$ -
TOTAL:		$ -	$ -

CERTIFICATION

I hereby certify, to the best of my knowledge and belief that--

(1) The amounts listed above are true and may be validated by the Contractor's Records that are on file at the contractor's office if requested by the VA.

(2) Contractors Records are maintained in accordance with LEED Reference Guide and LEED Template. (para. 1.7)

(3) Attached copies of all 'receiving' Parties, dates removed, transportation costs, weight tickets fees, manifests, invoices to match the time period covered. (para 3.3 C)

(4) Daily Reports describe any problems in complying with laws, regulations and ordinances & corrective action taken.

(Signature) (Date of signature)

(Printed Name) (Title)

SECTION 02 41 00
DEMOLITION

PART 1 - GENERAL

1.1 DESCRIPTION:

This section specifies demolition and removal of buildings, portions of buildings, utilities, other structures and debris from trash dumps shown.

1.2 RELATED WORK:

A. Safety Requirements: GENERAL CONDITIONS Article, ACCIDENT PREVENTION.

D. Reserved items that are to remain the property of the Government: Section 01 00 00, GENERAL REQUIREMENTS.

G. Environmental Protection: Section 01 57 19, TEMPORARY ENVIRONMENTAL CONTROLS.

H. Construction Waste Management: Section 01 74 19 CONSTRUCTION WASTE MANAGEMENT.

I. Infectious Control: Section 01 00 00, GENERAL REQUIREMENTS, Article 1.7, INFECTION PREVENTION MEASURES.

1.3 PROTECTION:

A. Perform demolition in such manner as to eliminate hazards to persons and property; to minimize interference with use of adjacent areas, utilities and structures or interruption of use of such utilities; and to provide free passage to and from such adjacent areas of structures. Comply with requirements of GENERAL CONDITIONS Article, ACCIDENT PREVENTION.

D. Provide enclosed dust chutes with control gates from each floor to carry debris to truck beds and govern flow of material into truck. Provide overhead bridges of tight board or prefabricated metal construction at dust chutes to protect persons and property from falling debris.

E. Prevent spread of flying particles and dust.

F. In addition to previously listed fire and safety rules to be observed in performance of work, include following:
   1. No wall or part of wall shall be permitted to fall outwardly from structures.
   2. Maintain at least one stairway in each structure in usable condition to highest remaining floor. Keep stairway free of obstructions and debris until that level of structure has been removed.
   4. Keep hydrants clear and accessible at all times. Prohibit debris from accumulating within a radius of 4500 mm (15 feet) of fire hydrants.

G. Before beginning any demolition work, the Contractor shall survey the site and examine the drawings and specifications to determine the extent of the work. The contractor shall take necessary precautions to avoid damages to existing items to remain in place, to be reused, or to remain the property of the Medical Center any damaged items shall be repaired or replaced as approved by the COTR. The Contractor shall coordinate the work of this section with all other work and shall construct and maintain shoring, bracing, and supports as required. The Contractor shall ensure that structural elements are not overloaded and shall be responsible for increasing structural supports or adding new supports as may be required as a result of any cutting, removal, or demolition work performed under this contract. Do not overload structural elements. Provide new supports and reinforcement for existing construction weakened by demolition or removal works. Repairs, reinforcement, or structural replacement must have COTR’s approval.

H. The work shall comply with the requirements of Section 01 57 19, TEMPORARY ENVIRONMENTAL CONTROLS.

I. The work shall comply with the requirements of Section 01 00 00, GENERAL REQUIREMENTS, Article 1.7 INFECTION PREVENTION MEASURES.

PART 2 - PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 DEMOLITION:

A. Debris shall become property of Contractor and shall be disposed of daily, off the Medical Center to avoid accumulation at the demolition site. Materials that cannot be removed daily shall be stored in areas specified by the COTR. Contractor shall dispose debris in compliance with applicable federal, state or local permits, rules and/or regulations.

B. Remove and legally dispose of all debris. Materials removed shall become property of contractor and shall be disposed of in compliance with applicable federal, state or local permits, rules and/or regulations. The removal of hazardous material shall be referred to Hazardous Materials specifications.

E. Remove existing utilities as indicated or uncovered by work and terminate in a manner conforming to the nationally recognized code covering the specific utility and approved by the COTR. When Utility lines are encountered that are not indicated on the drawings, the COTR shall be notified prior to further work in that area.

3.2 CLEAN-UP:

On completion of work of this section and after removal of all debris, leave site in clean condition satisfactory to COTR. Clean-up shall include the Medical Center disposal of all items and materials not required to remain property of the Government as well as all debris and rubbish resulting from demolition operations.

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SECTION 09 06 00
SCHEDULE FOR FINISHES

PART I – GENERAL

1.1 DESCRIPTION

This section contains a coordinated system in which requirements for materials specified in other sections shown are identified by abbreviated material names and finish codes in the room finish schedule or shown for other locations.

1.2 MANUFACTURERS

Manufacturer’s trade names and numbers used herein are only to identify colors, finishes, textures and patterns. Products of other manufacturer’s equivalent to colors, finishes, textures and patterns of manufacturers listed that meet requirements of technical specifications will be acceptable upon approval in writing by contracting officer for finish requirements.

A. Salient Characteristics for Products listed by Brand Name and ‘or equal’. Refer to Paragraph 3.4 for the Salient Characteristics of the products listed by name.

1.3 SUBMITALS

Submit in accordance with SECTION 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES—provide quadruplicate samples for color approval of materials and finishes specified in this section.

1.4 APPLICABLE PUBLICATIONS

A. Publications listed below form a part of this specification to the extent referenced. Publications are referenced in text by basic designation only.

B. MASTER PAINTING INSTITUTE: (MPI)

2001.....Architectural Painting Specification Manual

PART 2- PRODUCTS

2.1 DIVISION 09 – FINISHES

A. SECTION 09 51 00, ACOUSTICAL CEILINGS

Finish Code	Component	Color	Manufacturer	Mfg Name/No.
ACT-1	15/16” Square lay-in acoustical tile.	White. Ceiling grid as shown on RCP drawings.	Armstrong Commercial Ceilings or equal.	Health Zone Optima, 3315 by Armstrong Commercial Ceilings or equal.

B. SECTION 09 65 19, RESILIENT TILE FLOORING

Finish Code	Size	Material/Component	Manufacturer	Mfg Name/No.
LCT-1	13” X 13” Approx.	Natural Linoleum/Primarily natural materials consisting of linseed oil, wood flour, and rosin binders.	Forbo Flooring, Inc. or equal.	Marmoleum Composition Tile/MCT-3120 Rosato or equal.

C. SECTION 09 65 16, VINYL SHEET FLOORING (VSF)

Finish Code	Pattern name	Manufacturer	Mfg. Color Name/No.
VSF-1	Eternal Wood	Forbo Flooring, Inc. or equal.	Tropical Beech/11562 or equal.
VSF-2	Eternal Wood	Forbo Flooring, Inc. or equal.	Red Oak/10492 or equal.

D. SECTION 09 65 16, VINYL SHEET FLOORING, HEAT WELDED SEAMS (WSF)

Finish Code	Pattern name	Manufacturer	Mfg. Color Name/No.
WSF-1	Eternal Weld heat welded seams.	Forbo Flooring, Inc. or equal.	To match: Eternal Wood Tropical Beech/11562 or equal.
WSF-2	Eternal Weld heat welded seams.	Forbo Flooring, Inc. or equal.	To match: Eternal Wood Red Oak/10492 or equal.

1. SECTION 09 65 16, WELDING RODS (WSF)

Finish code	Manufacturer	Mfg. Color Name/No.
WR-1	Eternal Weld by Forbo Flooring, Inc. or equal.	To match: Eternal Wood Tropical Beech/11562 or equal.
WR-2	Eternal Weld by Forbo Flooring, Inc. or equal.	To match: Eternal Wood Oak/10492 or equal.

E. SECTION 09 65 13, RESILIENT BASE (RSB-1)

Finish Code	Item	Height	Manufacturer	Mfg Name/No.
RCB-1	100% Rubber Cove Base (RCB), long toe.	6”	Roppe or equal.	Pinnacle/181 Russet or equal.

F. SECTION 09 91 00, PAINT AND COATINGS

1. MPI Gloss and Sheen Standards

		Gloss @60	Sheen @85
Gloss Level 1	a traditional matte finish-flat	max 5 units, and	max 10 units

Gloss Level 2	a high side sheen flat-“a velvet-like” finish	max 10 units, and	10-35 units
Gloss Level 3	a traditional “egg-shell like” finish	10-25 units, and	10-35 units
Gloss Level 4	a “satin-like” finish	20-35 units, and	min. 35 units
Gloss Level 5	a traditional semi-gloss	35-70 units	
Gloss Level 6	a traditional gloss	70-85 units	
Gloss level 7	a high gloss	more than 85 units	

2. Paint code	Gloss	Manufacturer	Mfg. Color Name/No.	Notes
PT-1	3	Harmony by Sherwin Williams or equal.	SW 6135 Ecru or equal.	Color throughout.
PT-2	3	Harmony by Sherwin Williams or equal.	SW 6500 Open Seas or equal.	Accent color.
PT-3	3	Harmony by Sherwin Williams or equal.	SW 7728 Sprout or equal.	Accent color.
PT-4	3	Harmony by Sherwin Williams or equal.	SW 7008 Alabaster or equal.	All ceiling soffits, ceiling drywall.
PT-5	3	Harmony by Sherwin Williams or equal.	TBD to match rubber base color. To be approved by VANIHCS Interior Designer.	All door frames and all metal doors paint color, including elevator door frames (frames only).

PT-6	3	Armor by Scuffmaster or equal *high performance coating.	TBD to match rubber base color. To be approved by VANIHCS Interior Designer.	Painted base. Paint cove ceramic glazed tile base only from top to bottom. * Negative air pressure ventilation required when applying low VOC high performance coating.

PART III EXECUTION

3.1 FINISH SCHEDULES & MISCELLANEOUS ABBREVIATIONS

FINISH SCHEDULE & MISCELLANEOUS ABBREVIATIONS	
Term	Abbreviation
Acoustical Ceiling Tile	ACT
Epoxy Resinous Base	ERB
Linoleum Composite Tile	LCT
Paint	PT
Rubber Cove Base	RCB
Vinyl Sheet Flooring	VSF
Heat Welded Seams	WSF
Welding Rods	WR

3.2 FINSIH SCHEDULE SYMBOLS

Symbol	Definition
**	Same finish as adjoining walls
-	No color required
E	Existing
XX	To match existing
EFTR	Existing finish to remain
RM	Remove

3.3 ROOM FINISH SCHEDULE

A. Match adjoining or existing similar surfaces colors, textures or patterns where disturbed or damaged by alterations or new work when not scheduled.

B. ROOM FINISH SCHEDULE: See Drawings (Finish Floor Plans, Finish Schedule).

3.4 SALIENT CHARACTERISTICTS OF BRAND NAME PRODUCTS

A. ACOUSTICAL CEILINGS (ACT-1)

1. The listed Brand Name: (Armstrong Commercial, Health Zone Optima, 3315)
2. Salient Characteristics:
   a. Surface Burning Characteristics: As follows, tested per ASTM E 84 and complying with ASTM E 1264 for Class A products.
      i. Flame Spread: 25 or less
      ii. Smoke Developed: 50 or less
   b. General:
      i. Surface Texture: Smooth
      ii. Composition: Fiberglass
      iii. Color: White
      iv. Size: 48in X 24in X 1-1/2in
      v. Edge Profile: Square Lay-In for interface with compatible Armstrong grid.
      vi. Noise Reduction Coefficient (NRC): ASTM C 423; Classified with UL label on product carton, 0.95.

vii. Ceiling Attenuation Class (CAC): ASTM C 1414; Classified with UL label on product carton, 29

viii. Emissions Testing: Section 01350 Protocol, < 13.5 ppb of formaldehyde when used under typical conditions required by ASHRAE Standard 62.1-2004, "Ventilation for Acceptable Indoor Air Quality"

ix. Flame Spread: ASTM E 1264; Class A (UL)

x. Light Reflectance (LR): ASTM E 1477; White Panel: Light Reflectance: 0.86.

xi. Antimicrobial Protection: Inherent - Resists the growth of mold/mildew and bacterial growth.

xii. Acceptable Product: Health Zone Optima, 3315 as manufactured by Armstrong World Industries.

c. Warranty Period Acoustical panels: Ten (10) years from date of substantial completion.

B. RESILIENT TILE FLOORING **(LCT-1) (Marmoleum Composition Tile/MCT-3120 Rosato)**

1. The listed Brand Name: (Forbo Flooring, Inc.)

2. Salient Characteristics:

a. Fire Performance Characteristics:

i. Critical Radiant Flux: Class 1 Rating per NFPA 253 (ASTM E 648) (0.45 watts/cm² or greater).

ii. Smoke Density: Less than 450 per NFPA 258 (ASTM E 662).

b. General

i. Description: Homogeneous tile linoleum of primarily natural materials consisting of linseed oil, wood flour, and rosin binders, mixed and calendared onto a polyester backing to ensure optimum dimensional stability. Pattern and color shall extend throughout total thickness of material.

ii. Size: [Approx. 13” X 13” (33.3 cm X 33.3 cm)] [Approx. 20” X 20” (50 cm X 50 cm)]

iii. Gauge: 2.5mm (1/10”)

iv. Backing: Polyester

c. Confirm that each product complies with the testing and product requirements of the California Department of Health Services Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small Scale Environmental Chambers, including 2004 Addenda. If a product specified has not been tested as noted, provide a substitution to the Architect for review and approval of an equal product meeting noted California Department of Health standard.

C. VINYL SHEET FLOORING **(VSF-1) (Forbo Flooring, Eternal Wood, Tropical Beech/11562) and (VSF-2) (Forbo Flooring, Eternal Wood, Red Oak/10492)**

1. The listed Brand Name: (Forbo Flooring, Inc.)
2. Salient Characteristics:

a. Fire Performance Characteristics:

i. Critical Radiant Flux: Class 1 Rating per NFPA 253 (ASTM E 648) (0.45 watts/cm² or greater).

ii. Smoke Density: Less than 450 per NFPA 258 (ASTM E 662).

b. General

1. Description: Highly compressed homogeneous vinyl wear layer with a high performance urethane top coat. A glass fiber interlayer to ensure dimensional stability and a calendared CDF backing support the wear layer.

2. Sheet goods.

3. Gauge: 2.0mm (0.080”)

4. Heat Welding Rod: color-matched welding rod.

5. PRODUCT PERFORMANCE AND TECHNICAL DATA

Reference Specification: ASTM F 1303, Standard Specification for Sheet Vinyl Floor Covering with Backing
Type 1, Grade 1, Class B Backing 2.1 Environmental:
2.2 Static Load Limit: 700 Pounds per square inch when tested in accordance with ASTM F 970-00, Standard Test Method for Static Load Limit.
2.3 Slip Resistance: meet or exceed A.D.A. recommendations of 0.6 for flat surfaces when tested in accordance with ASTM D 2047.
2.4 Castor Resistance: EN 425: Suitable for office chairs with castors.
2.5 Fire Testing: ASTM E 662/NFPA 258 (Smoke Density): 450 or less; ASTM E 648/NFPA 253 (Critical Radiant Flux): Class 1
2.6 Chemical Resistance: (Exposure Time: One Hour)

Acetic Acid (5%)	No Effect
Isopropyl Alcohol	No Effect
Sodium Hydroxide (5%)	No Effect
Hydrochloric Acid (5%)	No Effect
Sulfuric Acid	No Effect
Ammonia (5%)	No Effect
Bleach	No Effect
Phenol (5%)	No Effect
Gasoline	No Effect

Kerosene ---------- No Effect
Mineral Oil---------- No Effect
Olive Oil---------- No Effect

Tested in accordance with ASTM F 925, Standard Test Method for Resistance to Chemicals of Resilient Flooring.

D. RESILIENT BASE (RSB-1) (Roppe, Pinnacle/181 Russet)

1. The listed Brand Name: (Roppe Flooring, Inc.)

2. Salient Characteristics:

i. Thickness tolerance: Complies with ASTM F-386
ii. Flexibility: Complies with ASTM F-137
iii. Resistance to Heat Aging: Complies with ASTM F-1515
iv. Resistance to Detergents: Complies with ASTM F-925
v. Resistance to Alkalis: No fading or softening
vi. Dimensional Stability: Complies with ASTM F 1861
vii. Squareness: 90 degrees +/- 0.5 degrees
viii. Does do not contain any of the hazardous chemicals listed in California Proposition 65
ix. Collaborative for High Performance Schools (CHPS) 01350 Low-Emitting Material Criteria: Pass
x. Complies with ASTM F-1861 Type TS (Thermoset Vulcanized Rubber), Group 1 (Solid)
xi. Contains 10% natural rubber
xii. Thickness: 1/8" (3.175 mm) nominal
xiii. Color as selected by Architect from manufacturer's

E. PAINT (PT-1, PT-2, PT-3, PT-4, PT-5) (Sherwin Williams, 'Harmony' paint)

1. The listed Brand Name: (Sherwin Williams)

2. Salient Characteristics:

Harmony Interior Latex Eg-Shel provides a durable, low-odor, anti-microbial*, interior paint formulated without silica. You can use this product, without typical odor complaints, in **occupied** areas because of the very low odor during application and drying. *In addition, this product is specially formulated with odor-reducing properties to help reduce common household odors.*
Color: Most Colors **Coverage:** 350-400 sq ft/gal @ 4 mils wet; 1.8 mils dry Drying **Time, @ 77°F, 50% RH:** Touch: 1 hour Recoat: 4 hours
Drying and recoat times are temperature, humidity, and film thickness dependent Flash **Point:** N/A **Finish:** 10 - 20 units @ 85° **Tinting with Blend-A-Color: Base oz/gal Strength** Extra White 0-5 125%, Deep Base 4-12 125%, Addition of Blend-A-Color Tinting Color may increase the VOC.

Vehicle Type: EVA, **VOC (EPA Method 24)**: 0 g/L; 0.0 lb/gal, **Volume Solids**: 43 ± 2%, **Weight Solids**: 58 ± 2%,
Anti-microbial - This product contains agents which inhibit the growth of microbes on the surface of this paint film.

F. PAINT (PT-6) (Scuffmaster 'Armor')

1. The listed Brand Name: (Scuffmaster)
2. Salient Characteristics:

System Components: Base coat and pattern coat

Finish Appearance: Textured with speckle or short string pattern coat; pattern coat has semi-gloss sheen (30- 40% gloss at 60° angle)

Coverage Rates: Base coat - approximately 300 sq. ft. per gallon

Pattern coat - approximately 600 sq. ft. per gallon (standard colors)

Maximum VOC: Less than 150 g/l Laboratory Analysis

Fire Rating: Base Coat - Class A or I ASTM E-84-91a
Pattern Coat - Class A or I ASTM E-84-91a

Scrub Resistance: More than 25,000 scrub cycles ASTM D 2486

Stain Removal: Excellent Rating, 4-Hour Open Spot Test

--- E N D---

SECTION 09 51 00
ACOUSTICAL CEILINGS

PART 1- GENERAL

1.1 DESCRIPTION

A. Metal ceiling suspension system for acoustical ceilings.

B. Acoustical units.

C. Adhesive application.

1.2 SUBMITTAL

A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.

B. Samples:

1. Acoustical units, each type, with label indicating conformance to specification requirements.

C. Manufacturer's Literature and Data:

1. Ceiling suspension system, showing complete details of installation, including suspension system specified to match existing.
2. Acoustical units, each type

D. Manufacturer's Certificates: Acoustical units, each type, in accordance with specification requirements.

1.4 DEFINITIONS

A. Standard definitions as defined in ASTM C634.

B. Terminology as defined in ASTM E1264.

1.5 APPLICABLE PUBLICATIONS

A. Publications listed below form a part of this specification to extent referenced. Publications are referenced in the text by basic designation only.

B. American Society for Testing and Materials (ASTM):

A641/A641M-03 ..... Zinc-coated (Galvanized) Carbon Steel Wire

A653/A653M-07 ..... Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-coated (Galvannealed) by the Hot-Dip Process

C423-07 ..... Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method

C634-02 (E2007) .... Standard Terminology Relating to Environmental Acoustics

C635-04 ..... Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings

C636-06 ..... Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels

E84-07 ..... Surface Burning Characteristics of Building Materials

E119-07 ..... Fire Tests of Building Construction and Materials

E413-04 ..... Classification for Rating Sound Insulation.

E580-06 ..... Application of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Requiring Seismic Restraint

E1264-(R2005) ..... Classification for Acoustical Ceiling Products

C. ASHRAE Standard 62.1-2004, "Ventilation for Acceptable Indoor Air Quality"

PART 2- PRODUCTS

2.1 METAL SUSPENSION SYSTEM

A. ASTM C635, heavy-duty system, except as otherwise specified.

1. Ceiling suspension system members shall be fabricated from the following unless specified otherwise.
   a. Galvanized cold-rolled steel, bonderized.
2. Use same construction for cross runners as main runners. Use of lighter-duty sections for cross runners is not acceptable.

B. Exposed grid suspension system for support of lay-in panels:
1. Exposed grid width not less than 22 mm (9/16 inch) with not less than 8 mm (5/16 inch) panel bearing surface.
2. Fabricate wall molding and other special molding from the same material with same exposed width and finish as the exposed grid members. Wall molding to be match existing width of wall molding at other floors, and is 1” width, “White” color.
3. On exposed metal surfaces apply baked-on enamel flat texture finish in color to match adjacent acoustical units unless specified otherwise in Section 09 06 00, SCHEDULE FOR FINISHES.

2.2 WIRE

A. ASTM A641.
B. For wire hangers: Minimum diameter 2.68 mm (0.1055 inch).
C. For bracing wires: Minimum diameter 3.43 mm (0.1350 inch).

2.3 ANCHORS AND INSERTS

A. Use anchors or inserts to support twice the loads imposed by hangers attached thereto.
B. Hanger Inserts:
1. Fabricate inserts from steel, zinc-coated (galvanized after fabrication).
2. Nailing type option for wood forms:
   a. Upper portion designed for anchorage in concrete and positioning lower portion below surface of concrete approximately 25 mm (one inch).

b. Lower portion provided with not less than 8 mm (5/16 inch) hole to permit attachment of hangers.

3. Flush ceiling insert type:

a. Designed to provide a shell covered opening over a wire loop to permit attachment of hangers and keep concrete out of insert recess.

b. Insert opening inside shell approximately 16 mm (5/8 inch) wide by 9 mm (3/8 inch) high over top of wire.

c. Wire 5 mm (3/16 inch) diameter with length to provide positive hooked anchorage in concrete.

C. Clips:

1. Galvanized steel.

2. Designed to clamp to steel beam or bar joists, or secure framing member together.

3. Designed to rigidly secure framing members together.

4. Designed to sustain twice the loads imposed by hangers or items supported.

D. Tile Splines: ASTM C635.

2.4 CARRYING CHANNELS FOR SECONDARY FRAMING

A. Fabricate from cold-rolled or hot-rolled steel, black asphaltic paint finish, free of rust.

B. Weighing not less than the following, per 300 m (per thousand linear feet):

Size mm	Size Inches	Cold-rolled Kg	Cold-rolled Pound	Hot-rolled Kg	Hot-rolled Pound
38	1 1/2	215.4	475	508	1120
50	2	267.6	590	571.5	1260

2.5 ACOUSTICAL UNITS

A. General:

1. Ceiling Tile shall meet minimum 37% bio-based content in accordance with USDA Bio-Preferred Product requirements, and

a minimum of 50% (combined) post-industrial/post-consumer recycled content.

2. ASTM E1264, weighing 3.6 kg/m^2 (3/4 psf) minimum for mineral fiber panels or tile.
3. Class A Flame Spread: ASTM 84
4. Minimum NRC (Noise Reduction Coefficient): 0.70 unless specified otherwise: ASTM C423.
5. Minimum CAC (Ceiling Attenuation Class): 40-44 range unless specified otherwise: ASTM E413.
6. Manufacturers standard finish, minimum Light Reflectance (LR) coefficient of 0.75 on the exposed surfaces, except as specified otherwise in Section 09 06 00, SCHEDULE FOR FINISHES.
7. Lay-in panels: Sizes as shown, with square edges.

B. Type III Units - Mineral base with water-based painted finish less than 10 g/l VOC, Form 2 - Water felted, minimum 16 mm (5/8 inch) thick. Mineral base to contain minimum 65 percent recycled content.

C. Type IV Units - Mineral base with membrane-faced overlay, Form 2 - Water felted, minimum 16 mm (5/8 inch) thick. Apply over the paint coat on the face of the unit a poly (vinyl) chloride overspray having a flame spread index of 25 or less when tested in accordance with ASTM E84.

PART 3 EXECUTION

3.1 CEILING TREATMENT

A. Treatment of ceilings shall include sides and soffits of ceiling beams, furred work 600 mm (24 inches) wide and over, and vertical surfaces at changes in ceiling heights unless otherwise shown. Install acoustic tiles after wet finishes have been installed and solvents have cured.

B. Lay out acoustical units symmetrically about center lines of each room or space unless shown otherwise on reflected ceiling plan.

C. Moldings:

1. Install metal wall molding at perimeter of room, column, or edge at vertical surfaces.
2. Install special shaped molding at changes in ceiling heights and at other breaks in ceiling construction to support acoustical units and to conceal their edges.

D. Existing ceiling:

1. Where existing ceilings occur, rehange and relevel the existing grid where is if observed to be unlevel or when broken or missing hanger wires are encounted. The Criteria for releveling is the criteria listed below.
2. Where the existing ceilings occur, replace all cross members that have broken tabs and shall not lock into place.
3. Comply with specifications for new acoustical units for new units required to match appearance of existing units.
4. Provide and install hanger wires where it is found that the existing hanger wires are: missing, broken, slipped, to short, incorrectly attached to equipment, pipes, conduits or other non-approved items. If the existing wires can be reused and are not improperly attached then replacement of these wires is not required.

3.2 CEILING SUSPENSION SYSTEM INSTALLATION & REHANGING/RELEVELEING

A. General:

1. Install metal suspension system for acoustical tile and lay-in panels in accordance with ASTM C636, except as specified otherwise.
2. Use direct or indirect hung suspension system or combination thereof as defined in ASTM C635.
3. Support a maximum area of 1.48 m^2 (16 sf) of ceiling per hanger.

4. Prevent deflection in excess of 1/360 of span of cross runner and main runner.
5. Provide extra hangers, minimum of one hanger at each corner of each item of mechanical, electrical and miscellaneous equipment supported by ceiling suspension system not having separate support or hangers.
6. Provide not less than 100 mm (4 inch) clearance from the exposed face of the acoustical units to the underside of ducts, pipe, conduit, secondary suspension channels, concrete beams or joists; and steel beam or bar joist unless furred system is shown,
7. Use main runners not less than 1200 mm (48 inches) in length.
8. Install hanger wires vertically. Angled wires are not acceptable except for seismic restraint bracing wires.

B. Anchorage to Structure:

1. Concrete:
   a. Install hanger inserts and wire loops required for support of hanger and bracing wire in concrete forms before concrete is placed. Install hanger wires with looped ends through steel deck if steel deck does not have attachment device.
   b. Use eye pins or threaded studs with screw-on eyes in existing or already placed concrete structures to support hanger and bracing wire. Install in sides of concrete beams or joists at mid height.
2. Steel:
   a. When steel framing does not permit installation of hanger wires at spacing required, install carrying channels for attachment of hanger wires.
      (1) Size and space carrying channels to insure that the maximum deflection specified shall not be exceeded.

(2) Attach hangers to steel carrying channels, spaced four feet on center, unless area supported or deflection exceeds the amount specified.

b. Attach carrying channels to the bottom flange of steel beams spaced not 1200 mm (4 feet) on center before fire proofing is installed. Weld or use steel clips to attach to beam to develop full strength of carrying channel.

c. Attach hangers to bottom chord of bar joists or to carrying channels installed between the bar joists when hanger spacing prevents anchorage to joist. Rest carrying channels on top of the bottom chord of the bar joists, and securely wire tie or clip to joist.

B. Direct Hung Suspension System:

1. As illustrated in ASTM C635.
2. Support main runners by hanger wires attached directly to the structure overhead.
3. Maximum spacing of hangers, 1200 mm (4 feet) on centers unless interference occurs by mechanical systems. Use indirect hung suspension system where not possible to maintain hanger spacing.

C. Indirect Hung Suspension System:

1. As illustrated in ASTM C635.
2. Space carrying channels for indirect hung suspension system not more than 1200 mm (4 feet) on center. Space hangers for carrying channels not more than 2400 mm (8 feet) on center or for carrying channels less than 1200 mm (4 feet) or center so as to insure that specified requirements are not exceeded.
3. Support main runners by specially designed clips attached to carrying channels.

3.3 ACOUSTICAL UNIT INSTALLATION

A. Cut acoustic units for perimeter borders and penetrations to fit tight against penetration for joint not concealed by molding.

B. Install lay-in acoustic panels in exposed grid with not less than 6 mm (1/4 inch) bearing at edges on supports.
   1. Install tile to lay level and in full contact with exposed grid.
   2. Replace cracked, broken, stained, dirty, or tile not cut for minimum bearing.

C. Tile in concealed grid upward access suspension system:
   1. Install acoustical tile with joints close, straight and true to line, and with exposed surfaces level and flush at joints.
   2. Make corners and arises full, and without worn or broken places.
   3. Locate acoustical units providing access as specified under Article, ACCESS.

D. Adhesive applied tile:
   1. Condition of surface shall be in accordance with ASTM D1779, Note 1, Cleanliness of Surface, and Note 4, Rigidity of Base Surface.
   2. Size or seal surface as recommended by manufacturer of adhesive and allow to dry before installing units.

E. Markers: (NOTICE-THE EXISTING CEILING GRID HAS EXISTING COLOR CODED MARKERS THAT SHALL BE RETAINED. IF REMOVED BY THE CONTRACTOR OR IF THEY FALL OFF DURING THIS WORK THEN PROVIDE NEW COLOR MARKERS THAT MATCH THOSE THAT FALL OFF)
   1. Install markers of color code specified to identify the various concealed piping, mechanical, and plumbing systems.
   2. Attach colored markers to exposed grid on opposite sides of the units providing access.
   3. Attach marker on exposed ceiling surface of upward access acoustical unit.

3.4 PROJECT CONDITIONS

A. Indoor Air Quality:

1. Refer to Section 01 57 19, TEMPORARY ENVIRONMENTAL CONTROLS.

2. Indoor air quality shall be kept in all work areas while acoustical ceiling system work is in progress: See SECTION 01 57 19 TEMPORARY ENVIRONMENTAL CONTROLS, PART 1.2 QUALITY CONTROL.

3.5 CLEAN-UP AND COMPLETION

A. Replace damaged, discolored, dirty, cracked and broken acoustical units.

B. Leave finished work free from defects.

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SECTION 09 65 13
RESILIENT BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 DESCRIPTION

This section specifies the installation of rubber base and resilient stair treads with sheet rubber flooring on landings.

1.2 RELATED WORK

A. Color and texture: Section 09 06 00, SCHEDULE FOR FINISHES.

B. Integral base with sheet flooring: Section 09 65 16, RESILIENT SHEET FLOORING.

1.3 SUBMITTALS

A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.

B. Manufacturer's Literature and Data:

1. Description of each product.
2. Base and stair material manufacturer's recommendations for adhesives.
3. Application and installation instructions.

C. Samples:

1. Base: 150 mm (6 inches) long, each type and color.
2. Adhesive: Literature indicating each type.

1.4 DELIVERY

A. Deliver materials to the site in original sealed packages or containers, clearly marked with the manufacturer's name or brand, type and color, production run number and date of manufacture.

B. Materials from containers which have been distorted, damaged or opened prior to installation shall be rejected.

1.5 STORAGE

A. Store materials in weather tight and dry storage facility.

B. Protect material from damage by handling and construction operations before, during, and after installation.

1.6 APPLICABLE PUBLICATIONS

A. The publication listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.

B. American Society for Testing and Materials (ASTM):

F1344-04 ..... Rubber Floor Tile

F1859-04 ..... Rubber Sheet Floor Covering without Backing

F1860-04 ..... Rubber Sheet Floor Covering with Backing

F1861-02 ..... Resilient Wall Base

C. Federal Specifications (Fed. Spec.):

RR-T-650E ..... Treads, Metallic and Non-Metallic, Nonskid

PART 2 - PRODUCTS

2.1 GENERAL

Use only products by the same manufacturer and from the same production run.

2.2 RESILIENT BASE

A. ASTM F1861, 3 mm (1/8 inch) thick, 100 mm (6 inches) high, Type TP Rubber, Thermoplastics, Group 2-layered with molded top. Style B-cove.

B. Where carpet occurs, use Style A-straight.

C. Use only one type of base throughout.

2.5 PRIMER (FOR CONCRETE FLOORS)

As recommended by the adhesive and tile manufacturer.

2.6 LEVELING COMPOUND (FOR CONCRETE FLOORS)

Provide products with latex or polyvinyl acetate resins in the mix.

2.7 ADHESIVES

A. Use products recommended by the material manufacturer for the conditions of use.

B. Use low-VOC, Water based adhesive during installation.

PART 3 - EXECUTION

3.1 PROJECT CONDITIONS

A. Maintain temperature of materials above 21° C (70 °F), for 48 hours before installation.

B. Maintain temperature of rooms where work occurs, between 21° C and 27° C (70°F and 80°F) for at least 48 hours, before, during, and after installation.

C. Do not install materials until building is permanently enclosed and wet construction is complete, dry, and cured.

D. Indoor Air Quality:

1. Refer to Section 01 57 19, TEMPORARY ENVIRONMENTAL CONTROLS.

2. Indoor air quality shall be kept in all work areas while resilient base work is in progress: See SECTION 01 57 19

TEMPORARY ENVIRONMENTAL CONTROLS, PART 1.2 QUALITY CONTROL.

3.2 INSTALLATION REQUIREMENTS

A. The respective manufacturer's instructions for application and installation shall be considered for use when approved by the Resident Engineer.

B. Submit proposed installation deviation from this specification to the Resident Engineer indicating the differences in the method of installation.

C. The Resident Engineer reserves the right to have test portions of material installation removed to check for non-uniform adhesion and spotty adhesive coverage.

3.3 PREPARATION

A. Examine surfaces on which material is to be installed.

3.4 BASE INSTALLATION

A. Location:

1. Unless otherwise specified or shown, where base is scheduled, install base over toe space of base of

casework, lockers, laboratory, pharmacy furniture island cabinets and where other equipment occurs.

2. Extend base scheduled for room into adjacent closet, alcoves, and around columns.

B. Application:

1. Apply adhesive uniformly with no bare spots.
2. Set base with joints aligned and butted to touch for entire height.
3. Before starting installation, layout base material to provide the minimum number of joints with no strip less than 600 mm (24 inches) length.
   a. Short pieces to save material shall not be permitted.
   b. Locate joints as remote from corners as the material lengths or the wall configuration shall permit.

C. Factory formed inside/outside rubber corner blocks:

1. Field-cut pieces shall fit tightly with adjacent piece(s) and aligned on top.

2. All field cuts shall be precisely done with a straight edge tool for all butt joints.

D. Roll base for complete adhesion.

3.7 CLEANING AND PROTECTION

A. Clean all exposed surfaces of base and adjoining areas of adhesive spatter before it sets.

B. Keep traffic off resilient material for at least 72 hours after installation.

C. Clean and polish materials in the following order:

1. After two weeks, scrub resilient base, sheet rubber and treads materials with a minimum amount of water and a mild detergent. Leave surfaces clean and free of detergent residue.
2. Do not polish resilient rubber base.

D. When construction traffic is anticipated, cover tread materials with reinforced Kraft paper and plywood or

hardboard properly secured and maintained until removal is directed by the Resident Engineer.

E. Where protective materials are removed and immediately prior to acceptance, replace damaged materials and re-clean resilient materials. Damaged materials are defined as having cuts, gouges, scrapes or tears and not fully adhered.

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SECTION 09 65 16
RESILIENT SHEET FLOORING

PART 1 - GENERAL

1.1 DESCRIPTION

A. Grades of resilient sheet vinyl floor covering without backing having vinyl plastic wear layer with backing.

B. Installation of sheet flooring including following:

1. Heat welded seams.

1.2 RELATED WORK

B. Color, pattern and texture: Section 09 06 00, SCHEDULE FOR FINISHES.

E. Unbaked vinyl (homogenous) sheet flooring with welded seams: Section 09 65 16, RESILIENT SHEET FLOORING.

1.3 QUALITY CONTROL-QUALIFICATIONS:

A. The Contracting Officer shall approve products or service of proposed manufacturer, suppliers, and installers, and the Contractor shall submit certification that:

1. Heat welded seaming is manufacturer's prescribed method of installation.
2. Installer is approved by manufacturer of materials and has technical qualifications, experience, trained personnel, and facilities to install specified items.
3. Manufacturer's product submitted has been in satisfactory operation, on three installations similar and equivalent in size to this project for three years. Submit list of installations.

B. The sheet vinyl floor coverings shall meet fire performance characteristics as determined by testing products, per ASTM test method, indicated below by Underwriters Laboratories, Inc. (UL) or another recognized testing and inspecting agency acceptable to authorities having jurisdiction.

1. Critical Radiant Flux: 0.45 watts per sq. cm or more, Class I, per ASTM E648.
2. Smoke Density: Less than 450 per ASTM E662.

C. The floor covering manufacturer shall certify that products supplied for installation comply with local regulations controlling use of volatile organic compounds (VOC's).

1.4 SUBMITTALS

A. In accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES, submit following:

B. Manufacturer's Literature and Data:

1. Description of resilient material and accessories to be provided.
2. Resilient material manufacturer's recommendations for adhesives, weld rods, sealants, and underlayment.
3. Application and installation instructions.

C. Samples:

1. Sheet material, 38 mm by 300 mm (1-1/2 inch by 12 inch), of each color and pattern with a welded seam using proposed welding rod 300 mm (12 inches) square for each type, pattern and color.
3. Shop Drawings and Certificates: Layout of joints showing patterns where joints are expressed, and type and location of obscure type joints. Indicate orientation of directional patterns.
4. Certificates: Quality Control Certificate Submittals and lists specified in paragraph, QUALIFICATIONS.
5. Edge strips: 150 mm (6 inches) long each type.
6. Adhesive, underlayment and primer: Pint container, each type.

1.5 PROJECT CONDITIONS

A. Maintain temperature of floor materials and room, where work occurs, above 18 ° C (65 °F) and below 38 °C (100 °F) for 48 hours before, during and for 48 hours after

installation. After above period, room temperature shall not fall below 13 °C (55 °F).

B. Construction in or near areas to receive flooring work shall be complete, dry and cured. Do not install resilient flooring over slabs until they have been cured and are sufficiently dry to achieve a bond with adhesive. Follow flooring manufacturer’s recommendations for bond and moisture testing.

C. Building shall be permanently enclosed. Schedule construction so that floor receives no construction traffic when completed.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to site in original sealed packages or containers; labeled for identification with manufacturer's name and brand.

B. Deliver sheet flooring full width roll, completely enclosed in factory wrap, clearly marked with the manufacturer's number, type and color, production run number and manufacture date.

C. Store materials in weather tight and dry storage facility. Protect from damage due to handling, weather, and construction operations before, during and after installation. Store sheet flooring on end with ambient temperatures maintained as recommended by manufacturer.

D. Store sheet flooring on end.

E. Move sheet vinyl floor coverings and installation accessories into spaces where they shall be installed at least 48 hours in advance of installation.

1.7 APPLICABLE PUBLICATIONS

A. Publications listed below form a part of this specification to extent referenced. Publications are referenced in text by basic designation only.

B. American Society For Testing Materials (ASTM):

E648-09..... Critical Radiant Flux of Floor-Covering Systems Using a Radiant Energy Source.

E662-09..... Specific Optical Density of Smoke Generated by Solid Materials.

F710-08..... Practice for Preparing Concrete Floors and Other Monolithic Floors to Receive Resilient Flooring.

F1303-04..... Sheet Vinyl Floor Covering with Backing.

F1869-04 ..... Moisture Vapor Emission Rate of Concrete Subfloor using Anhydrous Calcium Chloride

F1913-04 ..... Sheet Vinyl Flooring without Backing

F2170-09 ..... Determining Relative Humidity in Concrete Floor Slabs using In-situ Probes

C. Resilient Floor Covering Institute (RFCI):

Recommended Work Practices for Removal of Resilient Floor Coverings.

1.8 SCHEDULING

Interior finish work such as plastering, drywall finishing, concrete, terrazzo, ceiling work, and painting work shall be complete and dry before installation. Mechanical, electrical, and other work above ceiling line shall be completed. Heating, ventilating, and air conditioning systems shall be installed and operating in order to maintain temperature and humidity requirements.

1.9 WARRANTY:

Submit written warranty, in accordance with FAR clause 52.246-21, Warranty of Construction requirements and the warranty period is for (1) year.

PART 2 - PRODUCTS

2.1 SHEET VINYL FLOOR COVERINGS

A. Sheet Vinyl Floor Coverings: Smooth face, minimum thickness nominal 2 mm (0.08 inch). Sheet flooring shall conform to ASTM F1913 and material requirements specified in ASTM F1303, Type II, Grade 1, backing classification not applicable. Foam backed sheet flooring is not acceptable.

B. Size: Provide maximum size sheet vinyl material produced by manufacturer to provide minimum number of joints. Minimum size width acceptable - 1200 mm (48 inches).

C. Each color and pattern of sheet flooring shall be of same production run.

2.2 WELDING ROD:

Product of floor covering manufacturer in color shall match field color and pattern color of sheet vinyl covering.

2.3 APPLICATION MATERIALS AND ACCESSORIES

A. Floor and Base Adhesive: Type recommended by sheet flooring material manufacturer for conditions of use.

B. Mastic Underlayment (for concrete floors): Provide products with latex or polyvinyl acetate resins in mix. Condition to be corrected shall determine type of underlayment selected for use.

C. Base Accessories:

1. Fillet Strip: 19 mm (3/4 inch) radius fillet strip compatible with resilient sheet material.
2. Cap Strip: Extruded flanged zero edge vinyl reducer strip approximately 25 mm (one inch) exposed height with 13 mm (1/2 inch) flange.

2.4 SHEET FLOORING

A. ASTM F1303, Type II, Grade 1, except for backing requirements. Foam backed sheet flooring is not acceptable.

B. Minimum nominal thickness 2 mm (0.08 inch); 1800 mm (6 ft) minimum width.

C. Critical Radiant Flux: 0.45 watts per sq.cm or more, Class I, per ASTM E648.

D. Smoke density: less than 450 per ASTM E662.

E. Color and pattern of sheet flooring of the same production run.

2.5 ADHESIVES

Water resistant type recommended by the sheet flooring manufacturer for the conditions of use. VOC not to exceed 50g/L

2.6 BASE CAP STRIP AND COVE STRIP

A. Extruded vinyl compatible with the sheet flooring.

B. Cap strip "J" shape with feathered edge flange approximately 25 mm (one inch) wide; top designed to receive sheet flooring with 13 mm (1/2 inch) flange lapping top of flooring

C. Cove strip 70 mm (2-3/4 inch) radius.

2.7 LEVELING COMPOUND (FOR CONCRETE FLOORS)

Provide cementitious products with latex or polyvinyl acetate resins in the mix.

2.8 PRIMER (FOR CONCRETE SUBFLOORS)

As recommended by the adhesive or sheet flooring manufacturer.

2.9 EDGE STRIPS

A. Edge or transition strips are not allowed and are not to be used.

2.10 SEALANT

A. As specified in Section 07 92 00, JOINT SEALANTS.

B. Compatible with sheet flooring.

PART 3 - EXECUTION

3.1 PROJECT CONDITIONS

A. Maintain temperature of sheet flooring above 36 °C (65 °F), for 48 hours before installation.

B. Maintain temperature of rooms where sheet flooring work occurs above
36 °C (65 °F), for 48 hours, before installation and during installation.

C. After installation, maintain temperature at or above 36 °C (65 °F.)

D. Indoor Air Quality:

1. Refer to Section 01 57 19, TEMPORARY ENVIRONMENTAL CONTROLS.

2. Indoor air quality shall be kept in all work areas while resilient flooring work is in progress: See SECTION 01 57 19
TEMPORARY ENVIRONMENTAL CONTROLS, PART 1.2 QUALITY CONTROL.

E. Building is permanently enclosed.

F. Wet construction in or near areas to receive sheet flooring is complete, dry and cured.

3.2 SUBFLOOR PREPARATION

A. Concrete Subfloors: Verify that concrete slabs comply with ASTM F710.

1. Installer shall examine surfaces on which resilient sheet flooring is to be installed, and shall advise Contractor, in writing, of areas which are unacceptable for installation of flooring material. Installer shall advise Contractor which methods are to be used to correct conditions that shall impair proper installation. Installation shall not proceed until unsatisfactory conditions have been corrected.

2. Slab substrates dry, free of curing compounds, sealers, hardeners, and other materials which would interfere with bonding of adhesive. Determine adhesion and dryness characteristics by performing bond and moisture

tests recommended by Resilient Floor Covering Institute recommendations in manual RFCI-MRP.

B. Broom or vacuum clean substrates to be covered by sheet vinyl floor coverings immediately before installation. Following cleaning, examine substrates to determine if there is visually any evidence of moisture, alkaline salts, carbonation, or dust.

C. Primer: If recommended by flooring manufacturer, prior to application of adhesive, apply concrete slab primer in accordance with manufacturer's directions.

D. Correct conditions which shall impair proper installation, including trowel marks, pits, dents, protrusions, cracks or joints.

E. Fill cracks, joints, depressions, and other irregularities in concrete with leveling compound.
   1. Do not use adhesive for filling or leveling purposes.
   2. Do not use leveling compound to correct imperfections which can be corrected by spot grinding.
   3. Trowel to smooth surface free of trowel marks, pits, dents, protrusions, cracks or joint lines.

F. Clean floor of oil, paint, dust and deleterious substances. Leave floor dry and cured free of residue from existing curing or cleaning agents.

G. Moisture Testing: Perform moisture and pH test as recommended by the flooring and adhesive manufacturers. Perform test locations starting on the deepest part of the concrete structure. Proceed with installation only after concrete substrates meet or exceed the manufacturer's requirements. In the absence of specific guidance from the flooring or adhesive manufacturer the following requirements are to be met:
   1. Perform moisture vapor emission tests in accordance with ASTM F1869. Proceed with installation only after substrates have a maximum moisture-vapor-emission rate

of 1.36 kg of water/92.9 sq. m (3lb of water/1000 sq. ft.) in 24 hours.

2. Perform concrete internal relative humidity testing using situ probes in accordance with ASTM F2170. Proceed with installation only after concrete reaches maximum 75 percent relative humidity level measurement.

H. Preparation shall include the removal of existing resilient floor and existing adhesive. Do not use solvents to remove adhesives. Coordinate with Asbestos Abatement Section if asbestos abatement procedures shall be involved.

I. Remove existing resilient flooring and adhesive completely in accordance with Resilient Floor Covering Institute recommendations in manual RFCI-WP. Solvents shall not be used.

3.3 INSTALLATION OF FLOORING

A. Install work in strict compliance with manufacturer's instructions and approved layout drawings.

B. Maintain uniformity of sheet vinyl floor covering direction and avoid cross seams.

C. Arrange for a minimum number of seams and place them in inconspicuous and low traffic areas, but in no case less than 150 mm (6 inches) away from parallel joints in flooring substrates.

D. Match edges of resilient floor coverings for color shading and pattern at seams.

E. Where resilient sheet flooring abuts other flooring material floors shall finish level.

F. Extend sheet vinyl floor coverings into toe spaces, door reveals, closets, and similar openings.

G. Inform the Resident Engineer of conflicts between this section and the manufacturer's instructions or recommendations for auxiliary materials, or installation methods, before proceeding.

H. Install sheet in full coverage adhesives.
   1. Air pockets or loose edges shall not be accepted.
   2. Trim sheet materials to touch in the length of intersection at pipes and vertical projections; seal joints at pipe with waterproof cement or sealant.

I. Keep joints to a minimum; avoid small filler pieces or strips.

J. Follow manufacturer's recommendations for seams at butt joints. Do not leave any open joints that would be readily visible from a standing position.

K. Follow manufacturer's recommendations regarding pattern match, if applicable.

3.5 WELDING

A. Heat weld all joints of flooring and base using equipment and procedures recommended by flooring manufacturer.

B. Welding shall consist of routing joint, inserting a welding rod into routed space, and terminally fusing into a homogeneous joint.

C. Upon completion of welding, surface across joint shall finish flush, free from voids, and recessed or raised areas.

D. Fusion of Material: Joint shall be fused a minimum of 65 percent through thickness of material, and after welding shall meet specified characteristics for flooring.

3.6 CLEANING

A. Clean small adhesive marks during application of sheet flooring and base before adhesive sets, excessive adhesive smearing shall not be accepted.

B. Remove visible adhesive and other surface blemishes using methods and cleaner recommended by floor covering manufacturers.

C. Clean and polish materials per flooring manufacturer's written recommendations.

D. Vacuum floor thoroughly.

E. Do not wash floor until after period recommended by floor covering manufacturer and then prepare in accordance with manufacturer’s recommendations.

F. Upon completion, Resident Engineer shall inspect floor and base to ascertain that work was done in accordance with manufacturer's printed instructions.

G. Perform initial maintenance according to flooring manufacturer’s written recommendations.

3.7 PROTECTION:

A. Protect installed flooring as recommended by flooring manufacturer against damage from rolling loads, other trades, or placement of fixtures and furnishings.

B. Keep traffic off sheet flooring for 24 hours after installation.

C. Where construction traffic is anticipated, cover sheet flooring with reinforced Kraft paper properly secured and maintained until removal is authorized by the Resident Engineer.

D. Where protective materials are removed and immediately prior to acceptance, repair any damage, re-clean sheet flooring, lightly re-apply polish and buff floor.

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SECTION 09 65 19
RESILIENT TILE FLOORING

PART 1 - GENERAL

1.1 DESCRIPTION

This section specifies the installation of solid vinyl tile flooring, vinyl composition tile flooring, rubber tile flooring, resilient linoleum tile flooring, and accessories.

1.2 RELATED WORK

A. Color and pattern and location in room finish schedule: Section 09 06 00, SCHEDULE FOR FINISHES.

B. Resilient Base: Section 09 65 13, RESILIENT BASE AND ACCESSORIES.

1.3 SUBMITTALS

A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.

B. Manufacturer's Literature and Data:

1. Description of each product.
2. Resilient material manufacturer's recommendations for adhesives, underlayment, primers and polish.
3. Application and installation instructions.

C. Samples:

1. Tile: 300 mm by 300 mm (12 inches by 12 inches) for each type, pattern and color.
2. Edge Strips: 150 mm (6 inches) long, each type.
3. Feature Strips: 150 mm (6 inches) long.

D. Shop Drawings:

1. Layout of patterns shown on the drawings and in Section 09 06 00, SCHEDULE FOR FINISHES.
2. Edge strip locations showing types and detail cross sections.

E. Test Reports:

1. Abrasion resistance: Depth of wear for each tile type and color and volume loss of tile, certified by independent laboratory.
2. Tested per ASTM F510.

1.4 DELIVERY

A. Deliver materials to the site in original sealed packages or containers, clearly marked with the manufacturer's name or brand, type and color, production run number and date of manufacture.

B. Materials from containers which have been distorted, damaged or opened prior to installation shall be rejected.

1.5 STORAGE

A. Store materials in weather tight and dry storage facility.

B. Protect from damage from handling, water, and temperature.

1.6 APPLICABLE PUBLICATIONS

A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.

B. American Society for Testing and Materials (ASTM):

D4078-02 (2008) .... Water Emulsion Floor Finish

E648-10 ..... Critical Radiant Flux of Floor Covering Systems Using a Radiant Energy Source

E662-09 ..... Specific Optical Density of Smoke Generated by Solid Materials

E1155-96 (R2008) ... Determining Floor Flatness and Floor Levelness Numbers

F510-93 (R 2008) ... Resistance to Abrasion of Resilient Floor Coverings Using an Abrader with a Grit Feed Method

F710-08 ..... Preparing Concrete Floors to Receive Resilient Flooring

F 2195 ..... Standard Specification for Linoleum Tile Floor Covering

C. Resilient Floor Covering Institute (RFCI):

IP #2 ..... Installation Practice for Vinyl Composition Tile (VCT)

D. Federal Specifications (Fed. Spec.):

SS-T-312 ..... Resilient Tile Floor: Asphalt, Rubber, Vinyl, Linoleum, and Vinyl Composition

PART 2 - PRODUCTS

2.1 GENERAL

A. Furnish product type, materials of the same production run and meeting following criteria.

B. Use adhesives, underlayment, primers and polish recommended by the floor resilient material manufacturer.

C. Critical Radiant Flux: 0.45 watts per sq. cm or more, Class I, per ASTM E 648.

D. Smoke density: Less than 450 per ASTM E662.

2.2 RESILIENT LINOLEUM TILE FLOORING

A. ASTM F1066, Composition 1, Class 2 (through pattern), 300 mm (12 inches) square, 3 mm (1/8 inch) thick.

B. Color and pattern uniformly distributed throughout thickness.

2.3 ADHESIVES

A. Comply with applicable regulations regarding toxic and hazardous materials Green Seal (GS-36) for commercial adhesive.

B. Use low-VOC, water based adhesive during installation.

2.4 PRIMER (FOR CONCRETE SUBFLOORS)

As recommended by the adhesive and tile manufacturer.

2.5 LEVELING COMPOUND (FOR CONCRETE FLOORS)

A. Provide cementitious products with latex or polyvinyl acetate resins in the mix.

B. Determine the type of underlayment selected for use by the condition to be corrected.

PART 3 - EXECUTION

3.1 PROJECT CONDITIONS

A. Maintain temperature of materials a minimum of 22 °C (70 °F,) for 48 hours before installation.

B. Maintain temperature of rooms where work occurs between 21 °C and 27 °C (70 °F and 80 °F), for at least 48 hours, before, during and after installation.

C. Do not install flooring until building is permanently enclosed and wet construction in or near areas to receive tile materials is complete, dry and cured.

D. Indoor Air Quality:

1. Refer to Section 01 57 19, TEMPORARY ENVIRONMENTAL CONTROLS.

2. Indoor air quality shall be kept in all work areas while resilient tile work is in progress: See SECTION 01 57 19 TEMPORARY ENVIRONMENTAL CONTROLS, PART 1.2 QUALITY CONTROL.

3.2 SUBFLOOR PREPARATION

A. Verify that concrete slabs comply with ASTM F710. At existing slabs, determine levelness by F-number method in accordance with ASTM E1155. Overall value shall not exceed as follows: FF30/FL20

B. Correct conditions which shall impair proper installation.

C. Fill cracks, joints and other irregularities in concrete with leveling compound:

1. Do not use adhesive for filling or leveling purposes.
2. Do not use leveling compound to correct imperfections which can be corrected by spot grinding.
3. Trowel to smooth surface free of trowel marks, pits, dents, protrusions, cracks or joints.

D. Clean floor of oil, paint, dust, and deleterious substances: Leave floor dry and cured free of residue from existing curing or cleaning agents.

E. Concrete Subfloor Testing:

Determine Adhesion and dryness of the floor by bond and moisture tests as recommended by RFCI manual MRP.

F. Perform additional subfloor preparation to obtain satisfactory adherence of flooring if subfloor test patches allows easy removal of tile.

G. Prime the concrete subfloor if the primer shall seal slab conditions that would inhibit bonding, or if priming is recommended by the tile or adhesive manufacturers.

H. Preparation of existing installation shall include the removal of existing resilient floor and existing adhesive. Do not use solvents to remove adhesives.

3.3 INSTALLATION

A. Install in accordance with manufacturer's instructions for application and installation unless specified otherwise.

B. Mix tile from at least two containers. An apparent line either of shades or pattern variance shall not be accepted.

C. Tile Layout:

1. If layout is not shown on drawings, lay tile symmetrically about center of room or space with joints aligned.
2. No tile shall be less than 150 mm (6 inches) and of equal width at walls.
3. Place tile pattern in the same direction; do not alternate tiles.

D. Trim tiles to touch for the length of intersections at pipes and vertical projections, seal joints at pipes with waterproof cement.

E. Application:

1. Apply adhesive uniformly with no bare spots.
   a. Conform to RFC1-TM-6 for joint tightness and for corner intersection unless layout pattern shows random corner intersection.

b. More than 5 percent of the joints not touching shall not be accepted.

2. Roll tile floor with a minimum 45 kg (100 pound) roller. No exceptions.

3. The Resident Engineer shall have test tiles removed to check for non-uniform adhesion, spotty adhesive coverage, and ease of removal. Install new tile for broken removed tile.

3.4 CLEANING AND PROTECTION

A. Clean adhesive marks on exposed surfaces during the application of resilient materials before the adhesive sets. Exposed adhesive is not acceptable.

B. Keep traffic off resilient material for a minimum 72 hours after installation.

C. Clean and polish materials in the following order:

1. For the first two weeks sweep and damp mopped only.

2. After two weeks, scrub resilient materials with a minimum amount of water and a mild detergent. Leave surface clean and free of detergent residue.

3. Apply polish to the floors in accordance with the polish manufacturer's instructions.

D. When construction traffic occurs over tile, cover resilient materials with reinforced Kraft paper properly secured and maintained until removal is directed by Resident Engineer. At entrances and where wheeled vehicles or carts are used, cover tile with plywood, hardboard, or particle board over paper, secured and maintained until removal is directed by COTR.

E. When protective materials are removed and immediately prior to acceptance, replace any damage tile, re-clean resilient materials, lightly re-apply polish and buff floors.

3.6 LOCATION

A. Extend tile flooring for room into adjacent closets and alcoves.

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SECTION 09 91 00
PAINTING

PART 1-GENERAL

1.1 DESCRIPTION

A. Section specifies field painting.

B. Section specifies prime coats which shall be applied in shop under other sections.

C. Painting includes shellacs, stains, varnishes, coatings specified, high performance coatings, and striping or markers and identity markings.

1.2 RELATED WORK

A. Type of Finish, Color, and Gloss Level of Finish Coat: Section 09 06 00, SCHEDULE FOR FINISHES.

1.3 SUBMITTALS

A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.

B. Manufacturer's Literature and Data:

Before work is started, or sample panels are prepared, submit manufacturer's literature, the current Master Painters Institute (MPI) "Approved Product List" indicating brand label, product name and product code as of the date of contract award, shall be used to determine compliance with the submittal requirements of this specification. The Contractor shall choose to use subsequent MPI "Approved Product List", however, only one list shall be used for the entire contract and each coating system is to be from a single manufacturer. All coats on a particular substrate shall be from a single manufacturer. No variation from the MPI "Approved Product List" where applicable is acceptable.

C. Sample Panels:

1. After painters' materials have been approved and before work is started submit sample panels showing each type of finish and color specified.
2. Panels to show color: Composition board, 100 by 250 by 3 mm (4 inch by 10 inch by 1/8 inch).
3. Attach labels to panel stating the following:
   a. Federal Specification Number or manufacturers name and product number of paints used.
   b. Specification code number specified in Section 09 06 00, SCHEDULE FOR FINISHES.
   c. Product type and color.
   d. Name of project.

1.4 DELIVERY AND STORAGE

A. Deliver materials to site in manufacturer's sealed container marked to show following:

1. Name of manufacturer.
2. Product type.
3. Batch number.
4. Instructions for use.
5. Safety precautions.

B. In addition to manufacturer's label, provide a label legibly printed as following:

1. Federal Specification Number, where applicable, and name of material.
2. Surface upon which material is to be applied.
3. If paint or other coating, state coat types; prime, body or finish.

C. Maintain space for storage, and handling of painting materials and equipment in a neat and orderly condition to prevent spontaneous combustion from occurring or igniting adjacent items.

D. Store materials at site at least 24 hours before using, at a temperature between 18 and 30 degrees C (65 and 85 degrees F).

1.5 MOCK-UP PANEL

A. Before starting application of zero or low VOC paint and low VOC high performance coatings, apply paint as specified to an area, not to exceed 9 m^2 (100 ft^2), selected by Resident Engineer.

B. Finish and texture approved by Resident Engineer shall be used as a standard of quality for remainder of work.

1.6 APPLICABLE PUBLICATIONS

A. Publications listed below form a part of this specification to the extent referenced. Publications are referenced in the text by basic designation only.

B. American Conference of Governmental Industrial Hygienists (ACGIH):

ACGIH TLV-BKLT-2008 Threshold Limit Values (TLV) for Chemical Substances and Physical Agents and Biological Exposure Indices (BEIs)

ACGIH TLV-DOC-2008 . Documentation of Threshold Limit Values and Biological Exposure Indices, (Seventh Edition)

C. American National Standards Institute (ANSI):

A13.1-07 ..... Scheme for the Identification of Piping Systems

D. American Society for Testing and Materials (ASTM):

D 2486.....Standard Test Methods for Scrub Resistance of Wall Paints

D260-86.....Boiled Linseed Oil

E. Commercial Item Description (CID):

A-A-1555 ..... Water Paint, Powder (Cementitious, White and Colors) (WPC) (cancelled)

A-A-3120 ..... Paint, For Swimming Pools (RF) (cancelled)

F. Federal Specifications (Fed Spec):

TT-P-1411A ..... Paint, Copolymer-Resin, Cementitious (For Waterproofing Concrete and Masonry Walls) (CEP)

G. Master Painters Institute (MPI):

No. 1-07 ..... Aluminum Paint (AP)

No. 4-07 ..... Interior/ Exterior Latex Block Filler

No. 5-07 ..... Exterior Alkyd Wood Primer

No. 7-07 ..... Exterior Oil Wood Primer

No. 8-07 ..... Exterior Alkyd, Flat MPI Gloss Level 1 (EO)

No. 9-07 ..... Exterior Alkyd Enamel MPI Gloss Level 6 (EO)

No. 10-07 ..... Exterior Latex, Flat (AE)

No. 11-07 ..... Exterior Latex, Semi-Gloss (AE)

No. 18-07 ..... Organic Zinc Rich Primer

No. 22-07 ..... Aluminum Paint, High Heat (up to 590% - 1100F) (HR)

No. 26-07 ..... Cementitious Galvanized Metal Primer

No. 27-07 ..... Exterior / Interior Alkyd Floor Enamel, Gloss (FE)

No. 31-07 ..... Polyurethane, Moisture Cured, Clear Gloss (PV)

No. 36-07 ..... Knot Sealer

No. 43-07 ..... Interior Satin Latex, MPI Gloss Level 4

No. 44-07 ..... Interior Low Sheen Latex, MPI Gloss Level 2

No. 45-07 ..... Interior Primer Sealer

No. 46-07 ..... Interior Enamel Undercoat

No. 47-07 ..... Interior Alkyd, Semi-Gloss, MPI Gloss Level 5 (AK)

No. 48-07 ..... Interior Alkyd, Gloss, MPI Gloss Level 6 (AK)

No. 49-07 ..... Interior Alkyd, Flat, MPI Gloss Level 1 (AK)

No. 50-07 ..... Interior Latex Primer Sealer

No. 51-07 ..... Interior Alkyd, Eggshell, MPI Gloss Level 3

No. 52-07 ..... Interior Latex, MPI Gloss Level 3 (LE)

No. 53-07 ..... Interior Latex, Flat, MPI Gloss Level 1 (LE)

No. 54-07 ..... Interior Latex, Semi-Gloss, MPI Gloss Level 5 (LE)

No. 59-07 ..... Interior/Exterior Alkyd Porch & Floor Enamel, Low Gloss (FE)

No. 60-07 ..... Interior/Exterior Latex Porch & Floor Paint, Low Gloss

No. 66-07 ..... Interior Alkyd Fire Retardant, Clear Top-Coat (ULC Approved) (FC)

No. 67-07 ..... Interior Latex Fire Retardant, Top-Coat (ULC Approved) (FR)

No. 68-07 ..... Interior/ Exterior Latex Porch & Floor Paint, Gloss

No. 71-07 ..... Polyurethane, Moisture Cured, Clear, Flat (PV)

No. 74-07 ..... Interior Alkyd Varnish, Semi-Gloss

No. 77-07 ..... Epoxy Cold Cured, Gloss (EC)

No. 79-07 ..... Marine Alkyd Metal Primer

No. 90-07 ..... Interior Wood Stain, Semi-Transparent (WS)

No. 91-07 ..... Wood Filler Paste

No. 94-07 ..... Exterior Alkyd, Semi-Gloss (EO)

No. 95-07 ..... Fast Drying Metal Primer

No. 98-07 ..... High Build Epoxy Coating

No. 101-07 ..... Epoxy Anti-Corrosive Metal Primer

No. 108-07 ..... High Build Epoxy Coating, Low Gloss (EC)

No. 114-07 ..... Interior Latex, Gloss (LE) and (LG)

No. 119-07 ..... Exterior Latex, High Gloss (acrylic) (AE)

No. 135-07 ..... Non-Cementitious Galvanized Primer

No. 138-07 ..... Interior High Performance Latex, MPI Gloss Level 2 (LF)

No. 139-07 ..... Interior High Performance Latex, MPI Gloss Level 3 (LL)

No. 140-07 ..... Interior High Performance Latex, MPI Gloss Level 4

No. 141-07 ..... Interior High Performance Latex (SG) MPI Gloss Level 5

H. Steel Structures Painting Council (SSPC):

SSPC SP 1-04 (R2004) Solvent Cleaning

SSPC SP 2-04 (R2004) Hand Tool Cleaning

SSPC SP 3-04 (R2004) Power Tool Cleaning

PART 2 - PRODUCTS

2.1 MATERIALS

A. Interior Latex Primer Sealer: MPI 50.

B. Interior Alkyd, Eggshell: MPI 51

C. Interior Latex, MPI Gloss Level 3 (LE): MPI 52.

D. Interior High Performance Latex, Eggshell: MPI 139.

E. Miscellaneous Materials: Surface patching compounds and other materials necessary for application of primer, paint and high performance coatings shall be of high quality and compatible with coating system.

2.2 PAINT PERFORMANCE

A. High Performance Coating Scrub Test: Greater than 8200 cycles, ASTM D 2486

2.3 PAINT PROPERTIES

A. Use ready-mixed (including colors), except two component epoxies, polyurethanes, polyesters, paints having metallic powders packaged separately and paints requiring specified additives.

B. Where no requirements are given in the referenced specifications for primers, use primers with pigment and vehicle, compatible with substrate and finish coats specified.

2.4 REGULATORY REQUIREMENTS/QUALITY ASSURANCE

A. Paint materials shall conform to the restrictions of the local Environmental and Toxic Control jurisdiction.

1. Volatile Organic Compounds (VOC): VOC content of paint materials shall not exceed 10g/l for interior latex paints/primers and 50g/l for high performance coatings.
   a. Low-Emitting Materials: Submit certification by the manufacturer confirming that products (i.e., adhesives, sealants, paints, coatings, etc.) meet or exceed the volatile organic compound (VOC)limits set above. VOC limits shall be clearly stated in the submittal.
2. Lead-Base Paint:
   a. Comply with Section 410 of the Lead-Based Paint Poisoning Prevention Act, as amended, and with implementing regulations promulgated by Secretary of Housing and Urban Development.
   b. Regulations concerning prohibition against use of lead-based paint in federal and federally assisted construction, or rehabilitation of residential structures are set forth in Subpart F, Title 24, Code of Federal Regulations, Department of Housing and Urban Development.
   c. For lead-paint removal, see Section 02 83 33.13, LEAD-BASED PAINT REMOVAL AND DISPOSAL.
3. Asbestos: Materials shall not contain asbestos.
4. Chromate, Cadmium, Mercury, and Silica: Materials shall not contain zinc-chromate, strontium-chromate, Cadmium, mercury or mercury compounds or free crystalline silica.
5. Human Carcinogens: Materials shall not contain any of the ACGIH-BKLT and ACGHI-DOC confirmed or suspected human carcinogens.
6. Use high performance acrylic paints in place of alkyd paints, where possible.
7. VOC content for solvent-based paints shall not exceed 250g/l and shall not be formulated with more than one percent aromatic hydro carbons by weight.

PART 3 - EXECUTION

3.1 JOB CONDITIONS

A. Safety: Observe required safety regulations and manufacturer's warning and instructions for storage, handling and application of painting materials.

1. Take necessary precautions to protect personnel and property from hazards due to falls, injuries, toxic fumes, fire, explosion, or other harm.
2. Deposit soiled cleaning rags and waste materials in metal containers approved for that purpose. Dispose of such items off the site at end of each day’s work.

B. Indoor Air Quality:

1. Refer to Section 01 57 19, TEMPORARY ENVIRONMENTAL CONTROLS.
2. Indoor air quality shall be kept in all work areas while painting work is in progress: See SECTION 01 57 19 TEMPORARY ENVIRONMENTAL CONTROLS, PART 1.2 QUALITY CONTROL.

C. Atmospheric and Surface Conditions:

1. Do not apply coating when air or substrate conditions are:
   a. Less than 3 degrees C (5 degrees F) above dew point.
   b. Below 10 degrees C (50 degrees F) or over 35 degrees C (95 degrees F), unless specifically pre-approved by the Contracting Officer and the product manufacturer. Under no circumstances shall application conditions exceed manufacturer recommendations.
2. Maintain interior temperatures until paint dries hard.
3. Do no exterior painting when it is windy and dusty.
4. Do not paint in direct sunlight or on surfaces that the sun shall soon warm.
5. Apply only on clean, dry and frost free surfaces except as follows:
   a. Apply water thinned acrylic and cementitious paints to damp (not wet) surfaces where allowed by manufacturer's printed instructions.

b. Dampened with a fine mist of water on hot dry days concrete and masonry surfaces to which water thinned acrylic and cementitious paints are applied to prevent excessive suction and to cool surface.

6. Varnishing:
   a. Apply in clean areas and in still air.
   b. Before varnishing vacuum and dust area.
   c. Immediately before varnishing wipe down surfaces with a tack rag.

3.2 SURFACE PREPARATION

A. Method of surface preparation is optional, provided results of finish painting produce solid even color and texture specified with no overlays.

B. General:
   1. Remove prefinished items not to be painted such as lighting fixtures, escutcheon plates, hardware, trim, and similar items for reinstallation after paint is dried.
   2. Remove items for reinstallation and complete painting of such items and adjacent areas when item or adjacent surface is not accessible or finish is different.
   3. See other sections of specifications for specified surface conditions and prime coat.
   4. Clean surfaces for painting with materials and methods compatible with substrate and specified finish. Remove any residue remaining from cleaning agents used. Do not use solvents, acid, or steam on concrete and masonry.
   5. Previously Painted Surfaces: re-prime previously painted substrates with manufacturer’s recommended primer.

C. Wood:
   1. Sand to a smooth even surface and then dust off.
   2. Sand surfaces showing raised grain smooth between each coat.
   3. Wipe surface with a tack rag prior to applying finish.

4. Surface painted with an opaque finish:
   a. Coat knots, sap and pitch streaks with MPI 36 (Knot Sealer) before applying paint.
   b. Apply two coats of MPI 36 (Knot Sealer) over large knots.
5. After application of prime or first coat of stain, fill cracks, nail and screw holes, depressions and similar defects with wood filler paste. Sand the surface to make smooth and finish flush with adjacent surface.
6. Before applying finish coat, reapply wood filler paste if required, and sand surface to remove surface blemishes. Finish flush with adjacent surfaces.
7. Fill open grained wood such as oak, walnut, ash and mahogany with MPI 91 (Wood Filler Paste), colored to match wood color.
   a. Thin filler in accordance with manufacturer's instructions for application.
   b. Remove excess filler, wipe as clean as possible, dry, and sand as specified.

D. Ferrous Metals:
1. Remove oil, grease, soil, drawing and cutting compounds, flux and other detrimental foreign matter in accordance with SSPC-SP 1 (Solvent Cleaning).
2. Remove loose mill scale, rust, and paint, by hand or power tool cleaning, as defined in SSPC-SP 2 (Hand Tool Cleaning) and SSPC-SP 3 (Power Tool Cleaning). Exception: where high temperature aluminum paint is used, prepare surface in accordance with paint manufacturer's instructions.
3. Fill dents, holes and similar voids and depressions in flat exposed surfaces of hollow steel doors and frames, access panels, roll-up steel doors and similar items specified to have semi-gloss or gloss finish with TT-F-322D (Filler, Two-Component Type, For Dents, Small Holes and Blow-Holes). Finish flush with adjacent surfaces.

a. This includes flat head countersunk screws used for permanent anchors.
b. Do not fill screws of item intended for removal such as glazing beads.

4. Spot prime abraded and damaged areas in shop prime coat which expose bare metal with same type of paint used for prime coat. Feather edge of spot prime to produce smooth finish coat.
5. Spot prime abraded and damaged areas which expose bare metal of factory finished items with paint as recommended by manufacturer of item.

E. Zinc-Coated (Galvanized) Metal, Aluminum, Copper and Copper Alloys Surfaces Specified Painted:
1. Clean surfaces to remove grease, oil and other deterrents to paint adhesion in accordance with SSPC-SP 1 (Solvent Cleaning).
2. Spot coat abraded and damaged areas of zinc-coating which expose base metal on hot-dip zinc-coated items with MPI 18 (Organic Zinc Rich Coating). Prime or spot prime with MPI 134 (Waterborne Galvanized Primer) or MPI 135 (Non-Cementitious Galvanized Primer) depending on finish coat compatibility.

F. Gypsum Plaster and Gypsum Board:
1. Remove efflorescence, loose and chalking plaster or finishing materials.
2. Remove dust, dirt, and other deterrents to paint adhesion.
3. Fill holes, cracks, and other depressions with CID-A-A-1272A [Plaster, Gypsum (Spackling Compound) finished flush with adjacent surface, with texture to match texture of adjacent surface. Patch holes over 25 mm (1-inch) in diameter as specified in Section for plaster or gypsum board.

3.3 PAINT PREPARATION

A. Thoroughly mix painting materials to ensure uniformity of color, complete dispersion of pigment and uniform composition.

B. Do not thin unless necessary for application and when finish paint is used for body and prime coats. Use materials and quantities for thinning as specified in manufacturer's printed instructions.

C. Remove paint skins, then strain paint through commercial paint strainer to remove lumps and other particles.

D. Mix two component and two part paint and those requiring additives in such a manner as to uniformly blend as specified in manufacturer's printed instructions unless specified otherwise.

E. For tinting required to produce exact shades specified, use color pigment recommended by the paint manufacturer.

3.4 APPLICATION

A. Start of surface preparation or painting shall be construed as acceptance of the surface as satisfactory for the application of materials.

B. Unless otherwise specified, apply paint in three coats; prime, body, and finish. When two coats applied to prime coat are the same, first coat applied over primer is body coat and second coat is finish coat.

C. Apply each coat evenly and cover substrate completely.

D. Allow not less than 48 hours between applications of succeeding coats, except as allowed by manufacturer's printed instructions, and approved by Resident Engineer.

E. Finish surfaces to show solid even color, free from runs, lumps, brush marks, laps, holidays, or other defects.

F. Apply by brush, roller or spray, except as otherwise specified.

G. Do not spray paint in existing occupied spaces unless approved by Resident Engineer, except in spaces sealed from existing occupied spaces.

1. Apply painting materials specifically required by manufacturer to be applied by spraying.

2. In areas, where paint is applied by spray, mask or enclose with polyethylene, or similar air tight material with edges and seams continuously sealed including items specified in WORK NOT PAINTED, motors, controls, telephone, and electrical equipment, fronts of sterilizes and other recessed equipment and similar prefinished items.

I. Do not paint in closed position operable items such as access doors and panels, window sashes, overhead doors, and similar items except overhead roll-up doors and shutters.

3.5 PRIME PAINTING

A. After surface preparation prime surfaces before application of body and finish coats, except as otherwise specified.

B. Spot prime and apply body coat to damaged and abraded painted surfaces before applying succeeding coats.

C. Additional field applied prime coats over shop or factory applied prime coats are not required except for exterior exposed steel apply an additional prime coat.

D. Prime rebates for stop and face glazing of wood, and for face glazing of steel.

E. Wood and Wood Particleboard:

1. Use same kind of primer specified for exposed face surface.
   a. Exterior wood: MPI 7 (Exterior Oil Wood Primer) for new construction and MPI 5(Exterior Alkyd Wood Primer) for repainting bare wood primer except where MPI 90 (Interior Wood Stain, Semi-Transparent (WS)) is scheduled.
   b. Interior wood except for transparent finish: MPI 45 (Interior Primer Sealer) or MPI 46 (Interior Enamel Undercoat), thinned if recommended by manufacturer.
   c. Transparent finishes as specified under Transparent Finishes on Wood except Floors and Finish for Wood Floors.
2. Apply two coats of primer MPI 7 (Exterior Oil Wood Primer) or MPI 5 (Exterior Alkyd Wood Primer) or sealer MPI 45 (Interior Primer Sealer) or MPI 46 (Interior Enamel

Undercoat) to surfaces of wood doors, including top and bottom edges, which are cut for fitting or for other reason.

3. Apply one coat of primer MPI 7 (Exterior Oil Wood Primer) or MPI 5 (Exterior Alkyd Wood Primer) or sealer MPI 45 (Interior Primer Sealer) or MPI 46 (Interior Enamel Undercoat) as soon as delivered to site to surfaces of unfinished woodwork, except concealed surfaces of shop fabricated or assembled millwork and surfaces specified to have varnish, stain or natural finish.
4. Back prime and seal ends of exterior woodwork, and edges of exterior plywood specified to be finished.
5. Apply MPI 67 (Interior Latex Fire Retardant, Top-Coat (ULC Approved) (FR) to wood for fire retardant finish.

F. Metals except boilers, incinerator stacks, and engine exhaust pipes:

1. Steel and iron: MPI 95 (Fast Drying Metal Primer)
2. Zinc-coated steel and iron: MPI 134 (Waterborne Galvanized Primer) .
3. Aluminum scheduled to be painted: MPI 95 (Fast Drying Metal Primer).
4. Terne Metal: MPI 95 (Fast Drying Metal Primer).
5. Copper and copper alloys scheduled to be painted: MPI 95 (Fast Drying Metal Primer).
6. Machinery not factory finished: MPI 9 (Exterior Alkyd Enamel (EO)).
7. Asphalt coated metal: MPI 1 (Aluminum Paint (AP)).
8. Metal over 94 degrees C. (200 degrees F), Boilers, Incinerator Stacks, and Engine Exhaust Pipes: MPI 22 (High Heat Resistant Coating (HR)).

G. Gypsum Board and Hardboard:

1. Surfaces scheduled to have MPI 53 (Interior Latex, Flat) , MPI Gloss Level 1 LE)), MPI 52 (Interior Latex, MPI Gloss Level 3 (LE)), MPI 54 (Interior Latex, Semi-Gloss, MPI Gloss Level 5 (LE)), MPI 114 (Interior Latex, Gloss (LE)

and (LG)) finish: Use MPI 10 (Exterior Latex, Flat (AE)), MPI 11 (Exterior Latex, Semi-Gloss (AE)), MPI 119 (Exterior Latex, High Gloss (acrylic)(AE)) or MPI 53 (Interior Latex, MPI Gloss Level 3 (LE)) MPI 52 (Interior Latex, MPI Gloss Level 3 (LE)), MPI 54 (Interior Latex, Semi-Gloss, MPI Gloss Level 5 (LE)), MPI 114 (Interior Latex, Gloss (LE) and (LG)) respectively.

2. Primer: MPI 50(Interior Latex Primer Sealer) except use MPI 45 (Interior Primer Sealer) MPI 46 (Interior Enamel Undercoat) in shower and bathrooms.
3. Surfaces scheduled to receive vinyl coated fabric wallcovering:
   Use MPI 45 (Interior Primer Sealer).
4. Use MPI 101 (Cold Curing Epoxy Primer) for surfaces scheduled to receive MPI 77 (Epoxy Cold Cured, Gloss (EC)), MPI 98 (High Build Epoxy Coating), MPI 108 (High Build Epoxy Marine Coating (EC)) finish.

H. Gypsum Plaster and Veneer Plaster:

1. Surfaces scheduled to receive vinyl coated fabric wallcovering:
   Use MPI 45 (Interior Primer Sealer).
2. MPI 45 (Interior Primer Sealer), except use MPI 50 (Interior Latex Primer Sealer) when an alkyd flat finish is specified.
3. Surfaces scheduled to have MPI 10 (Exterior Latex, Flat (AE)), MPI 11 (Exterior Latex, Semi-Gloss (AE)), MPI 119 (Exterior Latex, High Gloss (acrylic) (AE)) or MPI 53 (Interior Latex, Flat, MPI Gloss Level 1 LE)) MPI 52 (Interior Latex, MPI Gloss Level 3 (LE),) MPI 54 (Interior Latex, Semi-Gloss, MPI Gloss Level 5 (LE)), MPI 114 (Interior Latex, Gloss (LE) and (LG)), finish: Use MPI 10 (Exterior Latex, Flat (AE)), MPI 11 (Exterior Latex, Semi-Gloss (AE)), MPI 119 (Exterior Latex, High Gloss (acrylic) (AE)) or MPI 53 (Interior Latex, Flat, MPI Gloss Level 1 LE)), MPI 52 Latex, MPI Gloss Level 3 (LE)) MPI 54

(Interior Latex, Semi-Gloss, MPI Gloss Level 5 (LE)), MPI 114 (Interior Latex, Gloss (LE) and (LG)) respectively.

4. Use MPI 101 (Cold Curing Epoxy Primer) for surfaces scheduled to receive MPI 77 (Epoxy Cold Cured, Gloss (EC)), MPI 108 (High Build Epoxy Marine Coating (EC)) finish.

I. Concrete Masonry Units except glazed or integrally colored and decorative units:

1. MPI 4 (Block Filler) on interior surfaces.
2. Prime exterior surface as specified for exterior finishes.

J. Cement Plaster or stucco, Concrete Masonry, Brick Masonry and Cement board Interior Surfaces of Ceilings and Walls:

1. MPI 53 (Interior Latex, Flat, MPI Gloss Level 1 LE)), MPI 52 (Interior Latex, MPI Gloss Level 3 (LE)), MPI 54 (Interior Latex, Semi-Gloss, MPI Gloss Level 5 (LE)), MPI 114 (Interior Latex, Gloss (LE) and (LG)), except use two coats where substrate has aged less than six months.
2. Use MPI 138 (Interior High Performance Latex, MPI Gloss Level 2 (LF)), MPI 139 (Interior High Performance Latex, MPI Gloss level 3 (LL)), MPI 140 (Interior High Performance latex, MPI Gloss Level 4), MPI 141 (Interior High Performance Latex (SG) MPI Gloss Level 5), MPI 114 (Interior Latex, Gloss (LE) and (LG)) TT-P-1411A (Paint, Copolymer Resin, Cementitious (CEP)) Type II, MPI 77 (Epoxy Cold Cured, Gloss (EC) MPI 98 (High Build Epoxy Coating), MPI 108 (High Build Epoxy Marine Coating (EC)) or CID-A-A-1555 (Water, Paint, Powder) as scheduled.

K. Concrete Floors: MPI 68 (Interior/ Exterior Latex Porch & Floor Paint, Gloss), MPI 60 (Interior-Exterior Latex Porch & Floor Paint, Low Gloss).

3.6 EXTERIOR FINISHES

A. Apply following finish coats where specified in Section 09 06 00, SCHEDULE FOR FINISHES.

B. Wood:

1. Do not apply finish coats on surfaces concealed after installation, top and bottom edges of wood doors and sash, or on edges of wood framed insect screens.
2. Portion of sash runs of double hung wood windows, concealed by sash when in a closed position: Apply two coats of ASTM D260 mixed with not more than 0.12L (1/4 pint) of dryer per 3.89L (gallon).
3. Two coats of MPI 10 Exterior Latex, Flat (AE)), MPI 11 (Exterior Latex, Semi-Gloss (AE)), MPI 119 (Exterior Latex, High Gloss (acrylic) (AE)) /on exposed surfaces, except where transparent finish is specified.
4. Two coats of MPI 31 (Polyurethane, Moisture Cured, Clear Gloss (PV)), MPI 71 (Polyurethane, Moisture Cured, Clear Flat (PV)) for transparent finish.

C. Steel and Ferrous Metal:

1. Two coats of MPI 8 (Exterior Alkyd, Flat (EO)), MPI 9 (Exterior Alkyd Enamel (EO)) MPI 94 (Exterior Alkyd, Semi-Gloss (EO)) on exposed surfaces, except on surfaces over 94 degrees C (200 degrees F).

D. Machinery without factory finish except for primer: One coat MPI 8 (Exterior Alkyd, Flat (EO)), MPI 9 (Exterior Alkyd Enamel (EO)), MPI 94 (Exterior Alkyd, Semi-Gloss (EO)).

E. Concrete Masonry Units, Brick, Cement Plaster, Concrete:

1. General:
   a. Where specified in Section 09 06 00, SCHEDULE FOR FINISHES or shown.
   b. Mix as specified in manufacturer's printed directions.
   c. Do not mix more paint at one time than can be used within four hours after mixing. Discard paint that has started to set.
   d. Dampen warm surfaces above 24 degrees C (75 degrees F) with fine mist of water before application of paint. Do not leave free water on surface.

e. Cure paint with a fine mist of water as specified in manufacturer's printed instructions.

2. Use two coats of TT-P-1411 (Paint, Co-polymer-Resin, Cementitious (CEP)), unless specified otherwise.

3.7 INTERIOR FINISHES

A. Apply following finish coats over prime coats in spaces or on surfaces specified in Section 09 06 00, SCHEDULE FOR FINISHES.

B. Metal Work:

1. Apply to exposed surfaces.

2. Omit body and finish coats on surfaces concealed after installation except electrical conduit containing conductors over 600 volts.

3. Ferrous Metal, Galvanized Metal, and Other Metals Scheduled:

a. Apply two coats of MPI 47 (Interior Alkyd, Semi-Gloss (AK)) unless specified otherwise.

b. Two coats of MPI 48 (Interior Alkyd Gloss (AK)) or MPI 51 (Interior Alkyd, Eggshell (AK)).

c. One coat of MPI 46 (Interior Enamel Undercoat) plus one coat of MPI 47 (Interior Alkyd, Semi-Gloss (AK)) on exposed interior surfaces of alkyd-amine enamel prime finished windows.

d. Two coats of CID-A-A3120 Type E (RP) on exposed surfaces in: battery rooms, pool area, chlorinator rooms .

e. Machinery: One coat MPI 9 (Exterior Alkyd Enamel (EO)).

f. Asphalt Coated Metal: One coat MPI 1 (Aluminum Paint (AP)).

g. Ferrous Metal over 94 degrees K (200 degrees F): Boilers, Incinerator Stacks, and Engine Exhaust Pipes: One coat MPI 22 (High Heat Resistant Coating (HR).

C. Gypsum Board:

1. One coat of , MPI 45 (Interior Primer Sealer) or MPI 46 (Interior Enamel Undercoat) plus one coat of MPI 139 (Interior High Performance Latex, MPI Gloss level 3 (LL)).

2. Two coats of MPI 138 (Interior High Performance Latex, MPI Gloss Level 2 (LF)).
3. One coat of MPI 45 (Interior Primer Sealer) or MPI 46 (Interior Enamel Undercoat) plus one coat of MPI 54 (Interior Latex, Semi-Gloss, MPI Gloss Level 5 (LE)) or MPI 114 (Interior Latex, Gloss (LE) and (LG)).
4. One coat of MPI 45 (Interior Primer Sealer) or MPI 46 (Interior Enamel Undercoat) plus one coat of MPI 48 (Interior Alkyd Gloss (AK)).

D. Plaster:

1. One coat of MPI 45 (Interior Primer Sealer) or MPI 46 (Interior Enamel Undercoat) MPI 50 (Interior Latex Primer Sealer) plus one coat of MPI 139 (Interior High Performance Latex, MPI Gloss level 3 (LL)).
2. Two coats of MPI 51 (Interior Alkyd, Eggshell) (AK)).
3. One coat of: MPI 45 (Interior Primer Sealer) or MPI 46 (Interior Enamel Undercoat) or MPI 50 (Interior Latex Primer Sealer) plus one coat of 139 (Interior High Performance Latex, MPI Gloss level 3 (LL)).
4. One coat MPI 101 (Cold Curing Epoxy Prime (EC)).

E. Masonry and Concrete Walls:

1. Over MPI 4 (Interior/Exterior Latex Block Filler) on CMU surfaces.
2. Two coats of MPI 53 (Interior Latex, Flat, MPI Gloss Level 1 (LE)) or MPI 52 (Interior Latex, MPI Gloss Level 3 (LE)) or MPI 54 (Interior Latex, Semi-Gloss, MPI Gloss Level 5 (LE)) or MPI 114 (Interior Latex, Gloss (LE) and (LG)).
3. Two coats of MPI 138 (Interior High Performance Latex, MPI Gloss Level 2 (LF)) or MPI 139 (Interior High Performance Latex, MPI Gloss level 3 (LL)) or MPI 140 (Interior High Performance Latex MPI Gloss level 4) or MPI 141 (Interior High Performance Latex (SG) MPI Gloss level 5) or MPI 114 (Interior Latex, Gloss (LE) and (LG)).

F. Wood:

1. Sanding:
   a. Use 220-grit sandpaper.
   b. Sand sealers and varnish between coats.
   c. Sand enough to scarify surface to assure good adhesion of subsequent coats, to level roughly applied sealer and varnish, and to knock off "whiskers" of any raised grain as well as dust particles.
2. Sealers:
   a. Apply sealers specified except sealer shall be omitted where pigmented, penetrating, or wiping stains containing resins are used.
   b. Allow manufacturer's recommended drying time before sanding, but not less than 24 hours or 36 hours in damp or muggy weather.
   c. Sand as specified.
3. Paint Finish:
   a. One coat of MPI 45 (Interior Primer Sealer) or MPI 46 (Interior Enamel Undercoat) plus one coat of MPI 47 (Interior Alkyd, Semi-Gloss (AK)) (SG).
   b. One coat MPI 66 (Interior Alkyd Fire retardant, Clear Top-Coat (ULC Approved) (FC) or MPI 67 (Interior Latex Fire Retardant, Top-Coat (ULC Approved) (FR), intumescent type (FR), on exposed wood, in attics with floors used for mechanical equipment and above ceilings where shown.
   c. One coat of MPI 45 Interior Primer Sealer) or MPI 46 (Interior Enamel Undercoat) plus one coat of MPI 48 (Interior Alkyd Gloss (AK)).
   d. Two coats of MPI 51 (Interior Alkyd, Eggshell) (AK)).
4. Transparent Finishes on Wood Except Floors.
   a. Natural Finish:
      1) One coat of sealer as written in 2.1 E.
      2) Two coats of MPI 71 (Polyurethane, Moisture Cured, Clear Flat (PV)//MPI 31 (Polyurethane, Moisture Cured, Clear Gloss (PV).

b. Stain Finish:
   1) One coat of MPI 90 (Interior Wood Stain, Semi-Transparent (WS)).
   2) Use wood stain of type and color required to achieve finish specified. Do not use varnish type stains.
   3) One coat of sealer as written in 2.1 E.
   4) Two coats of MPI 71 (Polyurethane, Moisture Cured, Clear Flat (PV) or MPI 31 (Polyurethane Moisture Cured, Clear Gloss (PV)).

c. Varnish Finish:
   1) One coat of sealer as written in 2.1 E.
   2) Two coats of MPI 71 (Polyurethane, Moisture Cured, Clear Flat (PV) or MPI 31 (Polyurethane Moisture Cured, Clear Gloss (PV)).

d. MPI 66 (Interior Alkyd Fire Retardant, Clear Top-Coat(ULC Approved) (FC)) Intumescent Type, Fire Retardant Coating (FC) where scheduled: Two coats.

5. Finish for Wood Floors:

a. Hardwood Flooring:
   1) Apply MPI 91 (Wood Filler Paste) to open grained wood. Remove surplus filler and wipe clean.
   2) Sand lightly when dry. Remove dust.
   3) Apply two coats of CID-A-A-2335 (Sealer, Surface).
   4) Apply two thin coats of P-W-155 (Wax Floor, Water Emulsion) and machine buff to uniform luster.

b. Stage Floor: Sand only. No filling, sealing, or waxing is required.

c. Exercise Area, Recreation Hall, Gymnasium, Handball Boards in Exercise Area Floor Finish:
   1) Two coats of CID-A-A-2335 (Sealer, Surface).
   2) Two coats of coating as written in 2.1 D (PL). Coating applied evenly in direction of boards and free from streaks.
   3) Allow 48 hours between coats.

4) Apply in one continuous operation with squeegee or lambs wool applicator with application free from streaks in accordance with plastic coating manufacturer's directions.

d. Striping:

1) Where striping is shown for wood floors apply plastic tape stripes as written in 2.1 F.

2) Do striping when floor coating is dry.

3) Install stripes to straight lines and true curves as shown.

G. Cement Board: One coat of MPI 138 (Interior High Performance Latex, MPI Gloss Level 2 (LF)) or MPI 139 (Interior High Performance Latex, MPI Gloss level 3 (LL)) or MPI 140 (Interior High Performance Latex MPI Gloss level 4) or MPI 141 (Interior High Performance Latex (SG) MPI Gloss Level 5 or MPI 114 (Interior Latex, Gloss (LE) and (LG)).

H. Concrete Floors: One coat of MPI 68 (Interior/ Exterior Latex Porch & Floor Paint, Gloss (FE)).

I. Miscellaneous:

1. Apply where specified in Section 09 06 00, SCHEDULE FOR FINISHES.
2. MPI 1 (Aluminum Paint): Two coats of aluminum paint.
3. Gold Paint (GP): Two coats of gold paint.
4. Existing acoustical units scheduled to be repainted except acoustical units with a vinyl finish:
   a. Clean units free of dust, dirt, grease, and other deterrents to paint adhesion.
   b. Mineral fiber units: One coat of MPI 53 (Interior Latex, Flat, MPI Gloss Level 1 (LE)) or MPI 52 (Interior Latex, MPI Gloss Level 3 (LE)) or MPI 54 (Interior Latex, Semi-Gloss, MPI Gloss Level 5 (LE)) or MPI 114 (Interior Latex, Gloss (LE) and (LG)) .

c. Units of organic fiber or other material not having a class A rating: One coat of MPI 66 (Interior Alkyd Fire Retardant, Clear Top-Coat (ULC Approved) (FC)) or MPI 67 (Interior Latex Fire Retardant, Top-Coat (ULC Approved) (FR)) or fire retardant paint.

5. Interstitial floor markings: One coat MPI 27 (Exterior/ Interior Alkyd Floor Enamel, Gloss (FE)) or MPI 59 ((Interior/ Exterior Alkyd Porch & Floor Enamel, Low Gloss (FE)) or MPI 68 (Interior/ Exterior Latex Porch & Floor Paint, Gloss) or MPI 60 (interior/ Exterior Latex Porch & Floor Paint, Low Gloss (FR)) .

3.8 REFINISHING EXISTING PAINTED SURFACES

A. Clean, patch and repair existing surfaces as specified under surface preparation.

B. Remove and reinstall items as specified under surface preparation.

C. Remove existing finishes or apply separation coats to prevent non compatible coatings from having contact.

D. Patched or Replaced Areas in Surfaces and Components: Apply spot prime and body coats as specified for new work to repaired areas or replaced components.

E. Except where scheduled for complete painting apply finish coat over plane surface to nearest break in plane, such as corner, reveal, or frame.

F. In existing rooms and areas where alterations occur, clean existing stained and natural finished wood retouch abraded surfaces and then give entire surface one coat of MPI 31 (Polyurethane, Moisture Cured, Clear Gloss) orMPI 71 (Polyurethane, Moisture Cured, Clear Flat (PV)) as directed by the VA.

G. Refinish areas as specified for new work to match adjoining work unless specified or scheduled otherwise.

H. Coat knots and pitch streaks showing through old finish with MPI 36 (Knot Sealer) before refinishing.

I. Sand or dull glossy surfaces prior to painting.

J. Sand existing coatings to a feather edge so that transition between new and existing finish shall not show in finished work.

3.9 PAINT COLOR

A. Color and gloss of finish coats is specified in Section 09 06 00, SCHEDULE FOR FINISHES.

B. For additional requirements regarding color see Articles, REFINISHING EXISTING PAINTED SURFACE and MECHANICAL AND ELECTRICAL FIELD PAINTING SCHEDULE.

C. Coat Colors:

1. Color of priming coat: Lighter than body coat.
2. Color of body coat: Lighter than finish coat.
3. Color prime and body coats to not show through the finish coat and to mask surface imperfections or contrasts.

D. Painting, Caulking, Closures, and Fillers Adjacent to Casework:

1. Paint to match color of casework where casework has a paint finish.
2. Paint to match color of wall where casework is stainless steel, plastic laminate, or varnished wood.

3.10 MECHANICAL AND ELECTRICAL WORK FIELD PAINTING SCHEDULE

A. Field painting of mechanical and electrical consists of cleaning, touching-up abraded shop prime coats, and applying prime, body and finish coats to materials and equipment if not factory finished in space scheduled to be finished.

B. In spaces not scheduled to be finish painted in Section 09 06 00, SCHEDULE FOR FINISHES paint as specified under paragraph H, colors.

C. Paint various systems specified on the drawings.

D. Paint after tests have been completed.

E. Omit prime coat from factory prime-coated items.

F. Finish painting of mechanical and electrical equipment is not required when located in interstitial spaces, above suspended ceilings, in concealed areas such as pipe and electric closets,

pipe basements, pipe tunnels, trenches, attics, roof spaces, shafts and furred spaces except on electrical conduit containing feeders 600 volts or more.

G. Omit field painting of items specified in paragraph, Building and Structural WORK NOT PAINTED.

H. Color:

1. Paint items having no color specified in Section 09 06 00, SCHEDULE FOR FINISHES to match surrounding surfaces.
2. Paint colors as specified in Section 09 06 00, SCHEDULE FOR FINISHES except for following:
   a. White .....Exterior unfinished surfaces of enameled plumbing fixtures. Insulation coverings on breeching and uptake inside boiler house, drums and drum-heads, oil heaters, condensate tanks and condensate piping.
   b. Gray: .....Heating, ventilating, air conditioning and refrigeration equipment (except as required to match surrounding surfaces), and water and sewage treatment equipment and sewage ejection equipment.
   c. Aluminum Color: Ferrous metal on outside of boilers and in connection with boiler settings including supporting doors and door frames and fuel oil burning equipment, and steam generation system (bare piping, fittings, hangers, supports, valves, traps and miscellaneous iron work in contact with pipe).
   d. Federal Safety Red: Exposed fire protection piping hydrants, post indicators, electrical conducts containing fire alarm control wiring, and fire alarm equipment.
   e. Federal Safety Orange: .Entire lengths of electrical conduits containing feeders 600 volts or more.
   f. Color to match brickwork sheet metal covering on breeching outside of exterior wall of boiler house.

I. Apply paint systems on properly prepared and primed surface as follows:

1. Exterior Locations:

a. Apply two coats of MPI 8 (Exterior Alkyd, Flat (EO)) or MPI 94 (Exterior Alkyd, Semi-gloss (EO)) or MPI 9 (Exterior Alkyd Enamel (EO)) to the following ferrous metal items:

Vent and exhaust pipes with temperatures under 94 degrees C (200 degrees F), roof drains, fire hydrants, post indicators, yard hydrants, exposed piping and similar items.

b. Apply two coats of MPI 10 (Exterior Latex, Flat (AE)) or MPI 11 (Exterior Latex, Semi Gloss (AE)) or MPI 119 (Exterior Latex, High Gloss (acrylic) (AE)) to the following metal items:

Galvanized and zinc-copper alloy metal.

c. Apply one coat of MPI 22 (High Heat Resistant Coating (HR)), 650 degrees C (1200 degrees F) to incinerator stacks, boiler stacks, and engine generator exhaust.

2. Interior Locations:

a. Apply two coats of MPI 47 (Interior Alkyd, Semi-Gloss (AK)) to following items:

1) Metal under 94 degrees C (200 degrees F) of items such as bare piping, fittings, hangers and supports.

2) Equipment and systems such as hinged covers and frames for control cabinets and boxes, cast-iron radiators, electric conduits and panel boards.

3) Heating, ventilating, air conditioning, plumbing equipment, and machinery having shop prime coat and not factory finished.

b. Ferrous metal exposed in hydrotherapy equipment room and chlorinator room of water and sewerage treatment plants:

One coat of MPI 101 (Cold Curing Epoxy Primer) and one coat of MPI 77 (Epoxy Cold Cured, Gloss (EC) or MPI 98

(High Build Epoxy Coating)) or MPI 108 (High Build Epoxy Marine coating (EC)).

c. Apply one coat of MPI 50 (Interior Latex Primer Sealer) and one coat of MPI 53 (Interior Latex, Flat, MPI Gloss Level 1 (LE)) or MPI 44 (Interior Low Sheen Latex) or MPI 52 (Interior Latex, MPI Gloss Level 3 (LE)) or MPI 43 (Interior Satin Latex) or MPI 54 (Interior Latex, Semi-Gloss, MPI Gloss Level 5 (LE)) or MPI 114 (Interior Latex, Gloss (LE) and (LG)) or on finish of insulation on boiler breeching and uptakes inside boiler house, drums, drumheads, oil heaters, feed water heaters, tanks and piping.

d. Apply two coats of MPI 22 (High Heat Resistant Coating (HR)) to ferrous metal surface over 94 degrees K (200 degrees F) of following items:

1) Garbage and trash incinerator.

2) Medical waste incinerator.

3) Exterior of boilers and ferrous metal in connection with boiler settings including supporting members, doors and door frames and fuel oil burning equipment.

4) Steam line flanges, bare pipe, fittings, valves, hangers and supports over 94 degrees K (200 degrees F).

5) Engine generator exhaust piping and muffler.

e. Paint electrical conduits containing cables rated 600 volts or more using two coats of or MPI 9 (Exterior Alkyd Enamel (EO)) or MPI 8(Exterior Alkyd, Flat (EO)) or MPI 94 (Exterior Alkyd, Semi-gloss (EO)) or in the Federal Safety Orange color in exposed and concealed spaces full length of conduit.

3. Other exposed locations:

a. Metal surfaces, except aluminum, of cooling towers exposed to view, including connected pipes, rails, and ladders: Two coats of MPI 1 (Aluminum Paint (AP)).

b. Cloth jackets of insulation of ducts and pipes in connection with plumbing, air conditioning, ventilating refrigeration and heating systems: One coat of MPI 50 (Interior Latex Primer Sealer) and one coat of MPI 10 (Exterior Latex, Flat (AE)) or MPI 11 (Exterior Latex Semi-Gloss (AE) or MPI 119 (Exterior Latex, High Gloss (acrylic)(AE)).

3.11 BUILDING AND STRUCTURAL WORK FIELD PAINTING

A. Painting and finishing of interior and exterior work except as specified under paragraph 3.11 B.

1. Painting and finishing of new and existing work including colors and gloss of finish selected is specified in Finish Schedule, Section 09 06 00, SCHEDULE FOR FINISHES.
2. Painting of disturbed, damaged and repaired or patched surfaces when entire space is not scheduled for complete repainting or refinishing.
3. Painting of ferrous metal and galvanized metal.
4. Identity painting and safety painting.

B. Building and Structural Work not Painted:

1. Prefinished items:
   a. Casework, doors, elevator entrances and cabs, metal panels, wall covering, and similar items specified factory finished under other sections.
   b. Factory finished equipment and pre-engineered metal building components such as metal roof and wall panels.
2. Finished surfaces:
   a. Hardware except ferrous metal.
   b. Anodized aluminum, stainless steel, chromium plating, copper, and brass, except as otherwise specified.
   c. Signs, fixtures, and other similar items integrally finished.
3. Concealed surfaces:

a. Inside dumbwaiter, elevator and duct shafts, interstitial spaces, pipe basements, crawl spaces, pipe tunnels, above ceilings, attics, except as otherwise specified.
b. Inside walls or other spaces behind access doors or panels.
c. Surfaces concealed behind permanently installed casework and equipment.

4. Moving and operating parts:
   a. Shafts, chains, gears, mechanical and electrical operators, linkages, and sprinkler heads, and sensing devices.
   b. Tracks for overhead or coiling doors, shutters, and grilles.
5. Labels:
   a. Code required label, such as Underwriters Laboratories Inc., Inchcape Testing Services, Inc., or Factory Mutual Research Corporation.
   b. Identification plates, instruction plates, performance rating, and nomenclature.
6. Galvanized metal:
   a. Exterior chain link fence and gates, corrugated metal areaways, and gratings.
   b. Gas Storage Racks.
   c. Except where specifically specified to be painted.
7. Metal safety treads and nosings.
8. Gaskets.
9. Concrete curbs, gutters, pavements, retaining walls, exterior exposed foundations walls and interior walls in pipe basements.
10. Face brick.
11. Structural steel encased in concrete, masonry, or other enclosure.
12. Structural steel to receive sprayed-on fire proofing.
13. Ceilings, walls, columns in interstitial spaces.

14. Ceilings, walls, and columns in pipe basements.

15. Wood Shingles.

3.12 PROTECTION CLEAN UP, AND TOUCH-UP

A. Protect work from paint droppings and spattering by use of masking, drop cloths, removal of items or by other approved methods.

B. Upon completion, clean paint from hardware, glass and other surfaces and items not required to be painted of paint drops or smears.

C. Before final inspection, touch-up or refinished in a manner to produce solid even color and finish texture, free from defects in work which was damaged or discolored.

- - - E N D - - -

APPENDIX

Coordinate the following abbreviations used in Section 09 91 00, PAINTING, with other Sections, especially Section 09 06 00, SCHEDULE FOR FINISHES and other COATING SECTIONS listed. Use the same abbreviation and terms consistently.

Paint or coating	Abbreviation	
Acrylic Emulsion		AE (MPI 10 – flat/MPI 11 – semi gloss/MPI 119 - gloss)
Alkyd Flat		Ak (MPI 49)
Alkyd Gloss Enamel		G (MPI 48)
Alkyd Semigloss Enamel	SG	(MPI 47)
Aluminum Paint	AP	(MPI 1)
Cementitious Paint		CEP (TT-P-1411)
Exterior Latex	EL	(MPI 10 / 11 / 119)
Exterior Oil	EO	(MPI 9 – gloss/MPI 8 – flat/MPI 94 – semigloss)
Epoxy Coating	EC	(MPI 77 – walls, floors/MPI 108 – CMU, concrete)
Fire Retardant Paint	FR	(MPI 67)
Fire Retardant Coating (Clear)	FC	(MPI 66, intumescent type)
Floor Enamel		FE (MPI 27 – gloss/MPI 59 – eggshell)
Latex Flat	LF	(MPI 138)
Latex Gloss	LG	(MPI 114)
Latex Semigloss	SG	(MPI 141)
Latex Low Luster	LL	(MPI 139)
Plastic Floor Coating	PL	
Polyurethane Varnish	PV	(MPI 31 – gloss/MPI 71 - flat)
Rubber Paint	RF	(CID-A-A-3120 - Paint for Swimming Pools (RF)).

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